Electronic Emission Notices

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions contained in this manual, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- REORIENT OR RELOCATE THE RECEIVING ANTENNA
- INCREASE THE SEPARATION BETWEEN THE EQUIPMENT AND THE RECEIVER
- CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT OF THE RECEIVER
- CONSULT THE DEALER OR AN EXPERIENCED AUDIO/TELEVISION TECHNICIAN

NOTE: Connecting this device to peripheral devices that do not comply with Class B requirements, or using an unshielded peripheral data cable, could also result in harmful interference to radio or television reception.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

Copyright
This manual is copyrighted with all rights reserved. No portion of this manual may be copied or reproduced by any means.

While every precaution has been taken in the preparation of this manual, no responsibility for errors or omissions is assumed. Neither is any liability assumed for damages resulting from the use of the information contained herein.

Trademarks
All brand names, logos and registered trademarks mentioned are property of their respective owners.

Safety Environmental Instruction

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.

- 0 to 40 centigrade is the suitable temperature. (The figure comes from the request of the main chipset)

- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.

- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.

- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

AMD AM3 Processor Family
Cooling Solutions

As processor technology pushes to faster speeds and higher performance with increasing operation clock, thermal management becomes increasingly crucial while building computer systems. Maintaining the proper computing environment without thermal increasing is the key to reliable, stable, and 24 hours system operation. The overall goal is keeping the processor below its specified maximum case temperature. Heatsinks induce improved processor heat dissipation through increasing surface area and concentrated airflow from attached active cooling fans. In addition, interface materials allow effective transfers of heat from the processor to the heatsink. For optimum heat transfer, AMD recommends the use of thermal grease and mounting clips to attach the heatsink to the processor.

Please refer to the website below for collection of heatsinks evaluated and recommended for Socket AM3 processors by AMD. In addition, this collection is not intended to be a comprehensive listing of all heatsinks that support AM3 processors.

Introduction

Features of motherboard

The AMD785G chipset motherboard series are based on the latest AMD785G Chipset and the SB710 chipset which supports the following AM3 CPU in the 95W range: Phenom II x 4；Phenom II x 3；Phenom II x2；Athlon II x4；Athlon II x3；Athlon II x2；Sempron. With an integrated low-latency high-bandwidth DDRIII memory controller and a highly-scalable Hyper Transport technology-based system bus up to HT 3.0. AMD785G Platform Processor Chipset motherboard series deliver the outstanding system performance and professional desktop platform solution.

The AMD785G Series motherboards support new generation Socket AM3 processors with an integrated DDRIII memory controller for Dual channel DDRIII800 /DDRIII1066/ DDRIII1333 DDRIII Module up to 8GB, also provide a DDRIII 128Mb GPU Memory. The motherboard is embedded with SB710 chipset of providing ULTRA ATA 133 connectors and Serial ATA2 with RAID 0, 1, 10 functions which support up to one IDE and six Serial ATA2 devices to accelerate hard disk drives and guarantee the data security without failure in advanced computing performance.

The AMD785G motherboards provide PCI-E Gigabit LAN chip which supports 10/100/1000Mbps data transfer rate. And the embedded ALC662 6-channel HD Audio CODEC is fully compatible with Sound Blaster Pro standards that offer you with the home cinema quality and satisfying software compatibility.

AMD785G Series motherboard series offer one PCI-Express2.0x16 graphics slots. One PCI-Express 2.0 x16 deliver up to 8Gbyte/sec data transfer rate at each relative direction. The AMD785G motherboards also carry two 32-bit PCI slots guarantee the rich connectivity for the I/O peripheral devices. This motherboard support Hybrid CrossFire function: when this function is selected through BIOS setting, the VGA Card on PE1 and the integrated graphics chip together will activate a Hybrid CrossFire with and the performance will be increased 15% to 75%.

Embedded USB controllers as well as capability of expanding to 8 of USB2.0 functional ports delivering 480Mb/s bandwidth of rich connectivity, these motherboards meet the future USB demands which are also equipped with hardware monitor function on system to monitor and protect your system and maintain your non-stop business computing.

Some special features--- ***CPU Thermal Throttling/ CPU VID/OC-CON/ G.P.I Function/3D Audio*/*Windows7*** in this motherboard are designed for power user to use the over-clocking function in more flexible ways. But please be caution that the over-clocking maybe causes the fails in system reliabilities. This motherboard provides the guaranteed performance and meets the demands of the next generation computing. But if you insist to gain more system performance with variety possibilities of the components you choose, please be careful and make sure to read the detailed

descriptions of these value added product features, please get them in the coming section.

Special Features of Motherboard

CPU Thermal Throttling Technology---(The CPU Overheat Protection Technology)
To prevent the increasing heat from damage of CPU or accidental shutdown while at high workload, the CPU Thermal Throttling Technology will force CPU to enter partially idle mode from 87.5% to 12.5% according to preset CPU operating temperature in BIOS (from 40℃ to 90℃). When the system senses the CPU operating temperature reaching the preset value, the CPU operating bandwidth will be decreased to the preset idle percentage to cool down the processor. When at throttling mode the beeper sound can be optionally selected to indicate it is in working. (For detail operating please read Section 3-11 Bi-turbo Configuration)

CPU VID--- (Shift to Higher Performance)
The CPU voltage can be adjusted for the precisely over-clocking of extra demanding computing performance.

OC-CON ---（High-polymer Solid Electrolysis Aluminum Capacitors）
The working temperature is from 55 degrees Centigrade below zero to 125 degrees Centigrade, OC-CON capacitors possess superior physical characteristics that can be while reducing the working temperature between 20 degrees Centigrade each time, intact extension 10 times of effective product operation lives, at not rising degrees Centigrade of working temperatures each time a relative one, life of product decline 10% only too.

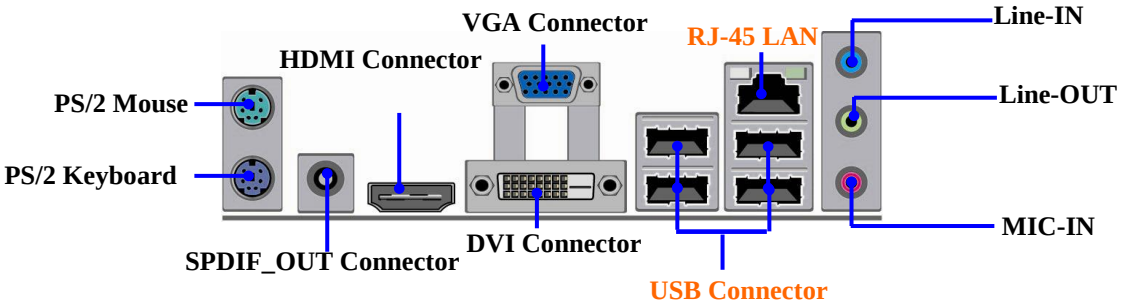
G.P.I Function--- G.P.I is a technology with remarkable power saving function: when you are using a computer with G.P.I mold turned on, you save averagely 10.5W in power consumption in the whole process than normal computer without G.P.I technology.

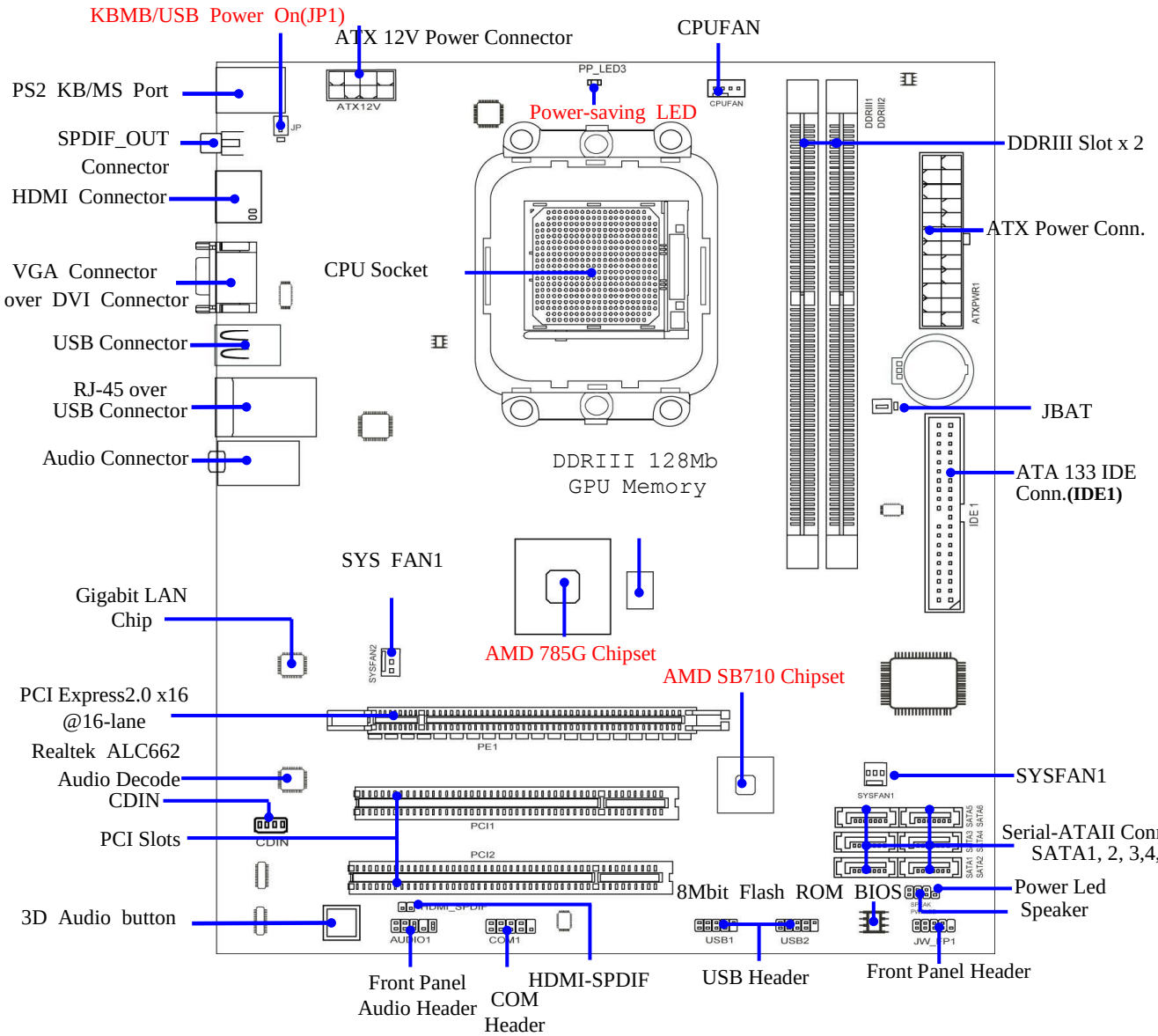
3D Audio
OP with two-stage Butterworth filter and quadruple non-inverting amplifier enhances bass effect under the 100MHz range to perfect audio effect, brings you stunning shock experience in video game, true-to-life simulated feeling when watching films and the greatest touch as that in the concert.

Specification

Spec	Description
Design	● Micro ATX form factor; size:24.5cm*21.0cm
Chipset	● AMD785G North Bridge Chipset ● AMD SB710 South Bridge Chipset
CPU Socket	● Phenom II x 4；Phenom II x 3；Phenom II x2；Athlon II x4；Athlon II x3；Athlon II x2；Sempron series AM3 CPU in the 95W range: ● Support HT 3.0
Memory Socket	● 240-pin DDRIII Module socket x 2 ● Support 2pcs DDRIII800/DDRIII1066/DDRIII1333 Modules Expandable to 8GB ● Dual channel supported
GPU Memory	● Embedded 128Mb DDRIII GPU sideport Memory
Expansion Slot	● 1 pcs PCI-Express 2.0 x16 by 16 lane ● 2pcs 32-bit PCI slots
Integrate IDE and Serial ATA2 RAID	● One IDE controllers support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100/133 functions that deliver the data transfer rate up to 133 MB/s for 2 IDE Devices and for 6 Serial ATA2 ports providing 300 MB/sec data transfer rate with RAID 0, 1, 10 functions
Gigabit LAN	● Integrated PCI-E gigabit LAN chip. ● Support Fast Ethernet LAN function of providing 10Mb/100Mb/1000 Mb/s data transfer rate
6 CH-Audio	● Realtek ALC662 HD Audio 6-channel Audio Codec integrated ● Support 6-channel 3D surround & Positioning Audio ● Audio driver and utility included
BIOS	● AMI 8MB DIP Flash ROM BIOS
Multi I/O	● PS/2 keyboard and PS/2 mouse connectors ● Coaxial S/PDIF Out Connector x1 ● HDMI Connector x1 ● DVI Connector x1 (HDMI Connector and DVI Connector can not be used at the same time) ● VGA Connector x1 ● USB2.0 port x 4 and header x 2 ● RJ-45 LAN Connector x1 ● Audio connector x1 ● Hard disk driver connector x 1/ SATA connector x 6 ● Serial Port header x1 ● HDMI_SPDIF header x1

Layout Diagram & Jumpers Setting





Hardware Installation

WARNING! Turn off your power when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

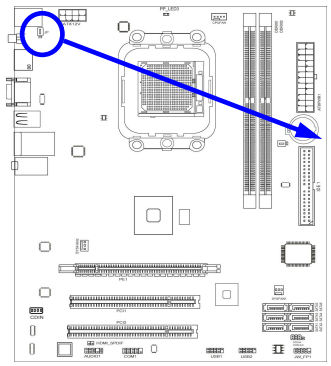
Hardware installation Steps

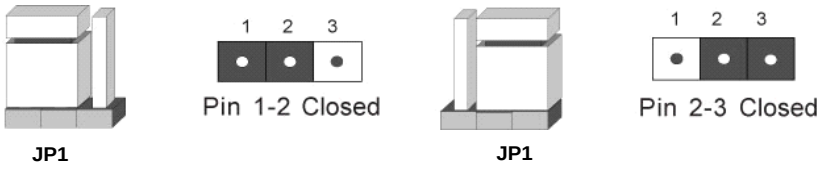
Before using your computer, you had better complete the following steps:

1. Check motherboard jumper setting
2. Install CPU and Fan
3. Install System Memory (DIMM)
4. Install Expansion cards
5. Connect IDE and Front Panel /Back Panel cable
6. Connect ATX Power cable
7. Power-On and Load Standard Default
8. Reboot
9. Install Operating System
10. Install Driver and Utility

Checking Motherboard's Jumper Setting

(1) Keyboard/USB function Enabled/Disabled: JP1





JP1 1-2 Closed KB/USB Power ON Disable (Default)

JP1 **2-3 Closed KB/USB Power ON Enabled**

Keyboard/Mouse & USB Power On Setting

(2) CMOS RAM Clear (3-pin) : JBAT

A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JBAT to store the CMOS data.

To clear the CMOS, follow the procedure below:

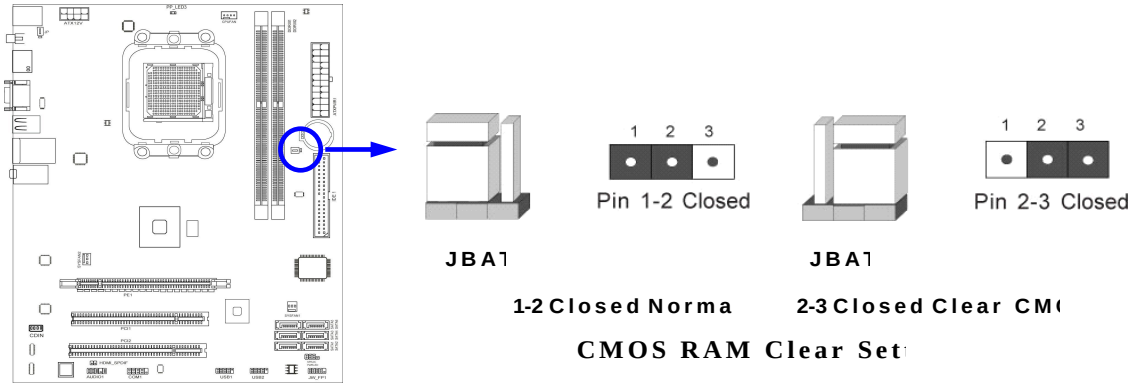
1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Locate JBAT and short pins 2-3 for a few seconds
4. Return JBAT to its normal setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

Note: When should clear CMOS

1. Troubleshooting

2. Forget password

3. After over clocking system boot fail



Install CPU

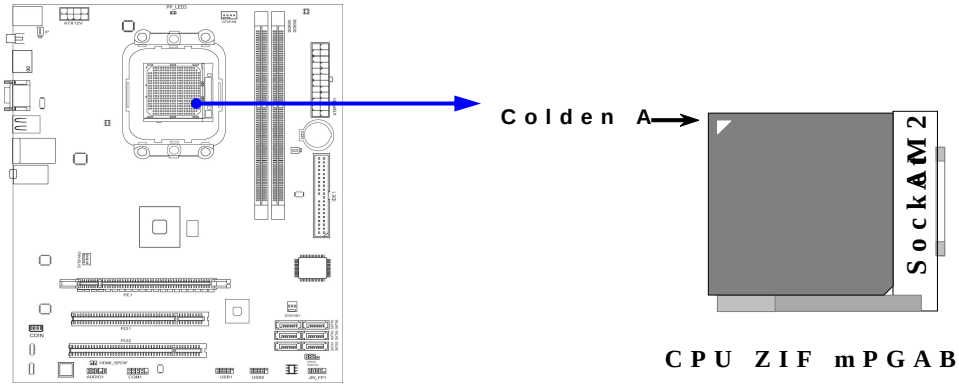
About AMD AM3 CPU Installation

This motherboard provides a socket AM2 surface mount, Zero Insertion Force (ZIF) socket, referred to as the mPGA940 socket supports AMD AM3 series processors.

The CPU that comes with the motherboard should have a cooling FAN attached to prevent overheating. If this is not the case, then purchase a correct cooling FAN before you turn on your system.

WARNING!	Be sure that there is sufficient air circulation across the processor's heatsink and CPU cooling FAN is working correctly, otherwise it may cause the processor and motherboard overheat and damage, you may install an auxiliary cooling FAN, if necessary.

To install a CPU, first turn off your system and remove its cover. Locate the ZIF socket and open it by first pulling the level sideways away from the socket then upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below. The notched corner should point toward the end of the level. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown.



When you put the CPU into the ZIF socket, No force required to insert of the CPU, and then press the level to locate position slightly without any extra force.

Install Memory

This motherboard provides two 240-pin DDRIII DUAL INLINE MEMORY MODULES (DIMM) socket for DDRIII memory expansion to maximum memory volume of 8 GB DDR SDRAM.

Valid Memory Configurations

Bank	240-Pin DIMM	PCS	Maximum Capacity
DDRIII1	DDRIII800/DDRIII1066/DDRIII1333/	X1	4GB
DDRIII2	DDRIII800/DDRIII1066/DDRIII1333/	X1	4GB
Total	System Memory (Max 4 GB)	2	8GB

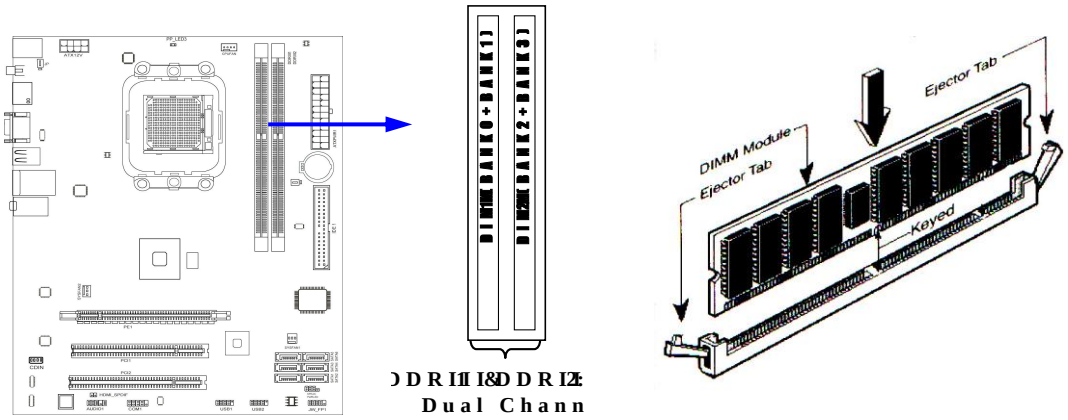
Recommend DIMM Module Combination：

1. One DDRIII Memory Module ----Plug in DDRIII1
2. Two DDRIII Memory Modules---Plug in DDRIII1 and DDRIII 2 for Dual channel function

Dual channel Limited!

1. Dual channel function only supports when 2 DDRIII Modules plug in either both DDRIII1 & DDRIII2.
2. Memory modules plugged in DDRIII1 & DDRIII2 must be of the same type, same size, and same frequency for dual channel function.

Install DDRIII modules to your motherboard is not difficult, you can refer to figure below to see how to install a 240-Pin DDRIII800/DDRIII1066/DDRIII1333/DDRIII1600 module.



NOTE!	When you install DIMM module fully into the DIMM socket the eject tab should be locked into the DIMM module very firmly and fit into its indention on both sides.

Expansion Cards

Procedure For Expansion Card Installation

1. Read the documentation for your expansion card and make any necessary hardware or software setting for your expansion card such as jumpers.
2. Remove your computer's cover and the bracket plate on the slot you intend to use.
3. Align the card's connectors and press firmly.
4. Secure the card on the slot with the screen you remove above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver for your expansion card.

2-5-2 Assigning IRQs For Expansion Card

Some expansion cards need an IRQ to operate. Generally, an IRQ must exclusively assign to one use. In a standard design, there are 16 IRQs available but most of them are already in use.

Standard Interrupt Assignments

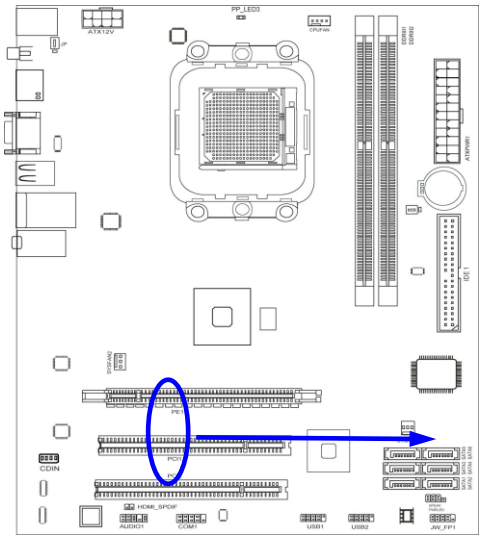
IRQ	Priority	Standard function
0	N/A	System Timer
1	N/A	Keyboard Controller
2	N/A	Programmable Interrupt
3 *	8	Communications Port (COM2)
4 *	9	Communications Port (COM1)
5 *	6	Sound Card (sometimes LPT2)
6 *	11	Floppy Disk Controller
7 *	7	Printer Port (LPT1)
8	N/A	System CMOS/Real Time Clock
9 *	10	ACPI Mode when enabled
10 *	3	IRQ Holder for PCI Steering
11 *	2	IRQ Holder for PCI Steering
12 *	4	PS/2 Compatible Mouse Port
13	N/A	Numeric Data Processor
14 *	5	Primary IDE Channel
15 *	1	Secondary IDE Channel

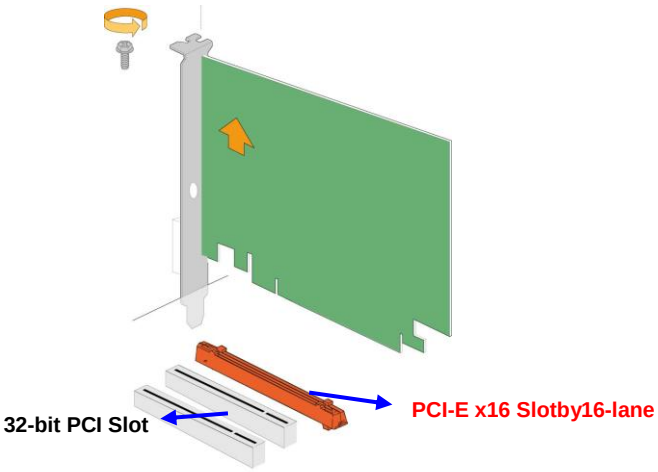
* These IRQs are usually available for ISA or PCI devices.

NOTE! If using PCI cards on shared slots, make sure that the drivers support "Shared IRQ" or that the cards don't need IRQ assignments. Conflicts will arise between the two PCI groups that will make the system unstable or cards inoperable.

Expansion Slot

One PCI-Express2.0 x16@16 lane graphic slot offer 8Gbyte/sec data transfer rate at each relative direction and up to 16Gbyte/sec concurrent bandwidth at full speed. Fully compliant to the *PCI Express Base Specification revision2.0*, support PCI Express VGA card, and other PCI Express device. Two 32-bit PCI slots guarantee the rich connectivity for the I/O of peripherals.





Connectors, Headers

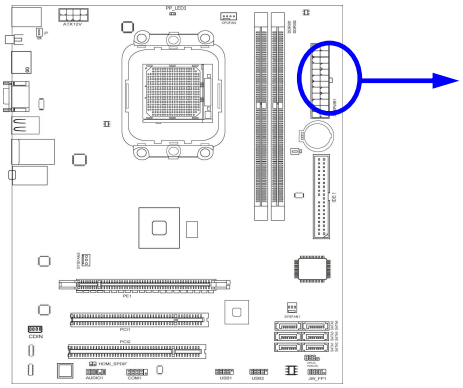
Connectors

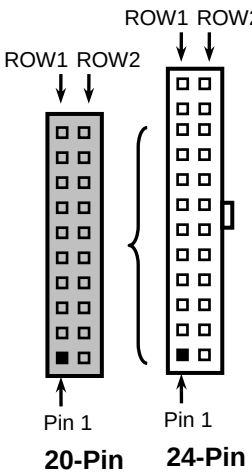
(1) Power Connector (24-pin block): ATXPWR1

ATX Power Supply connector: This is a new defined 24-pins connector that usually comes with ATX case. The ATX Power Supply allows using soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.

** We recommend that you use an ATX 12V Specification 2.0-compliant power supply unit (PSU) with a minimum of 350W power rating. This type has 24-pin and 4-pin power plugs.

** If you intend to use a PSU with 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15A on +12V and the power supply unit has a minimum power rating of 350W. The system may become unstable or may not boot up if the power is inadequate.

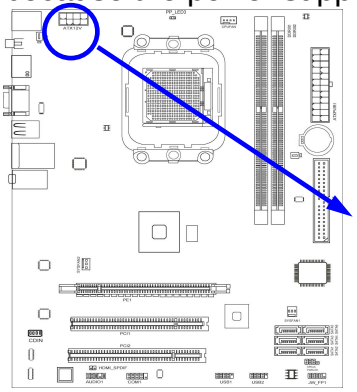


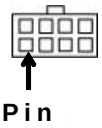


PIN	ROW1	ROW2
1	3.3V	3.3V
2	3.3V	-12V
3	GND	GND
4	5V	Soft Power On
5	GND	GND
6	5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V (for Soft Logic)	+5V
10	+12V	+5V
11	+12V	+5V
12	+3V	GND

(2)ATX 12V Power Connector (8-pin block) : ATX12V

This is a new defined 8-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully supports Socket AM2+ processor must including this connector for support extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.





(3) PS/2 Mouse & PS/2 Keyboard Connector: KB

The connectors are for PS/2 keyboard and PS/2 Mouse.

(4) USB Port connector: CN5/ UL1 for USB

The connectors are 4-pin connector that connects USB devices to the system board.

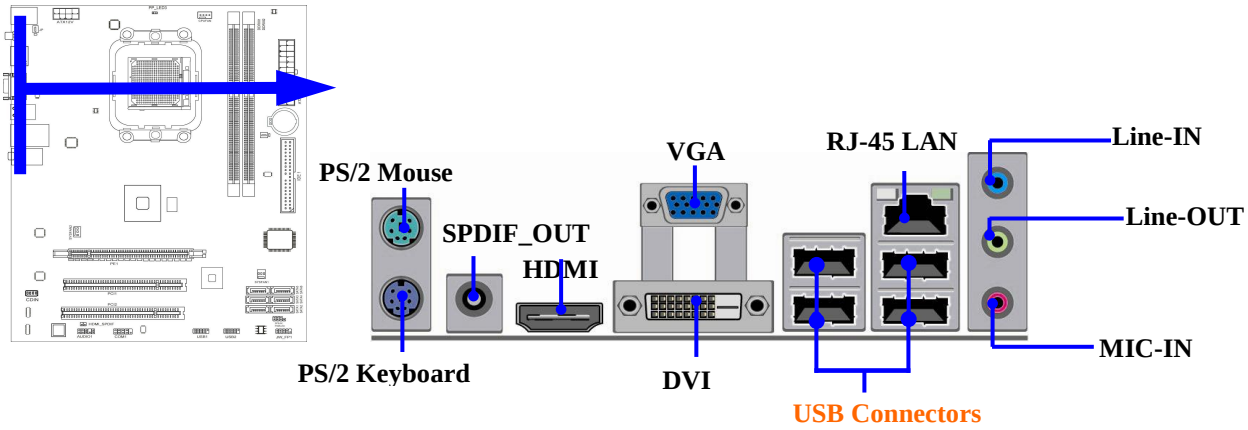
(5) LAN Port connector: UL1 for RJ-45 LAN

The connector is standard RJ45 connector for Network. It supports 10M/100Mb/1000Mb s data transfer rate

(6) Audio Line-In, Lin-Out, MIC Connector: AUDIO

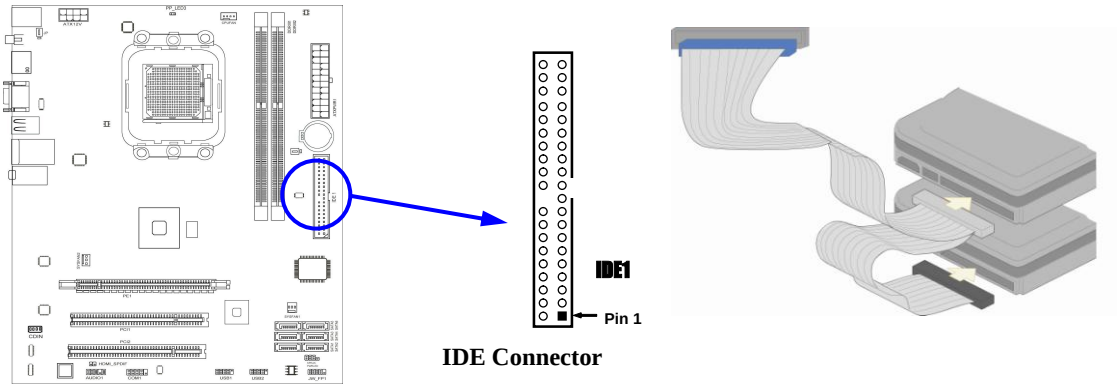
These Connectors are 3 Phone-Jack for LINE-OUT, LINE-IN, MIC audio connections.

Line-in: (BLUE) Audio input to sound chip
Line-out: (GREEN) Audio output to speaker
MIC: (PINK) Microphone Connector



(7) Primary IDE Connector (40-pin block): IDE1

This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.

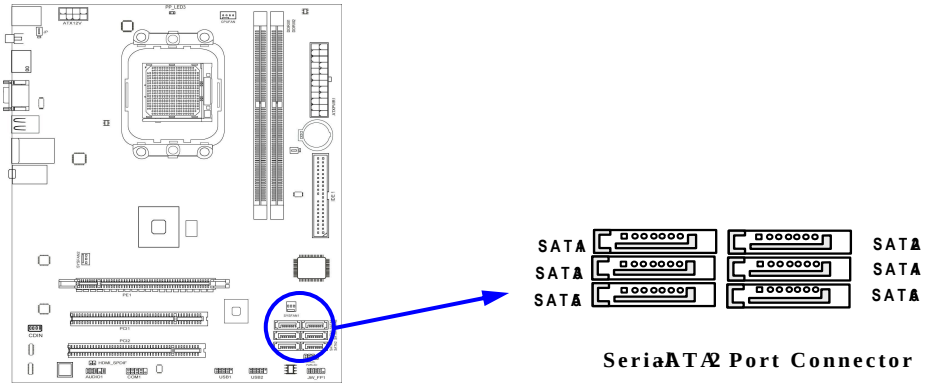


IDE Connector

- Two hard disks can be connected to each connector. The first HDD is referred to as the “Master” and the second HDD is referred to as the “Slave”.
- For performance issues, we strongly suggest you don’t install a CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance on this channel may drop.

(8) Serial-ATAII Port connector: SATA1, SATA 2, SATA3, SATA4, SATA5, SATA6

This connector supports the provided Serial ATA2 IDE hard disk cable to connecting the motherboard with serial ATAII hard disk.



Serial ATA2 Port Connector

(9) D-Sub 15-pin Connector: VGA

VGA connector is the 15-pin D-subminiature female connector; it is for the display devices, such as the CRT monitor, LCD monitor and so on.

(10) Digital Visual Interface: DVI1

This interface standard designed to maximize the visual quality of digital display devices such as flat panel LCD computer displays and digital projectors.

(11) High-Definition Multimedia Interface: HDMI

This point-to-point interface is for audio and video signals designed as a single-cable solution for home theater and consumer electronics equipment.

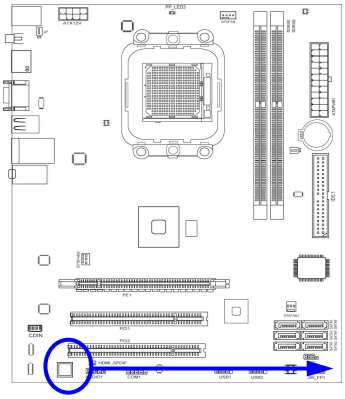
(12) SPDIF Out connectors: SPDIF_Out1

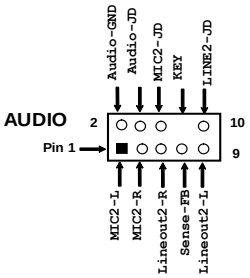
The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby digital decoder. Use this feature only when your stereo system has digital input function.

Headers

(1) Line-Out/MIC Header for Front Panel (9-pin): AUDIO

These headers connect to Front Panel Line-out, MIC connector with cable.

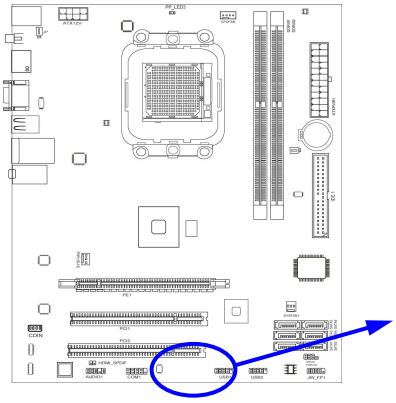


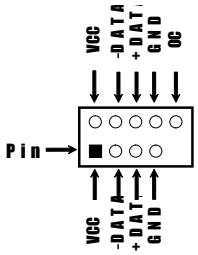


Line-Out, MIC Headers

(2)USB Port Headers (9-pin): USB1/USB2

These headers are used for connecting the additional USB port plug. By attaching an option USB cable, your can be provided with two additional USB plugs affixed to the back panel.





USB Port Hea

(3) Speaker connector: SPEAK1

This 4-pin connector connects to the case-mounted speaker. See the figure below.

(4) Power LED: PWR LED/PWRLED1

The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.

(5) IDE Activity LED: HD LED

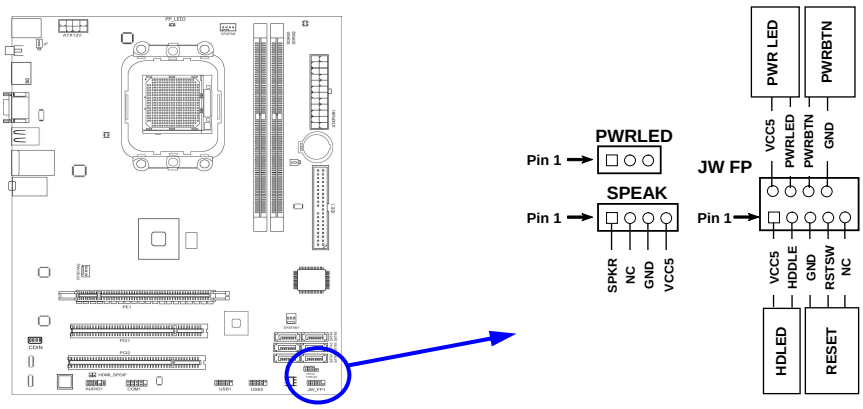
This connector connects to the hard disk activity indicator light on the case.

(6) Reset switch lead: RESET

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the lift of the system's power supply. See the figure below.

(7)Power switch: PWR BTN

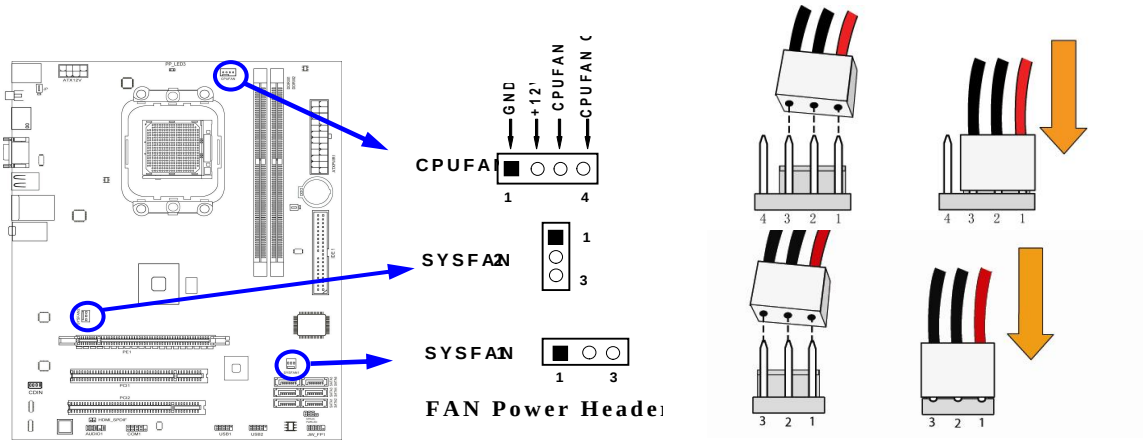
This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.



System Case Connections

(8)FAN Power Headers: SYSFAN1 (3-pin), SYSFAN2 (3-pin), CPUFAN (4-pin)

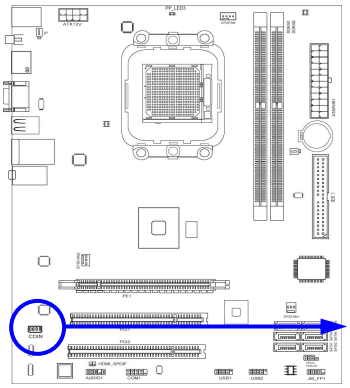
These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.

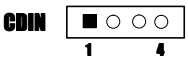


FAN Power Header

(9)CD Audio-In Headers (4-pin): CDIN1

CDIN are the connectors for CD-Audio Input signal. Please connect it to CD-ROM CD-Audio output connector.

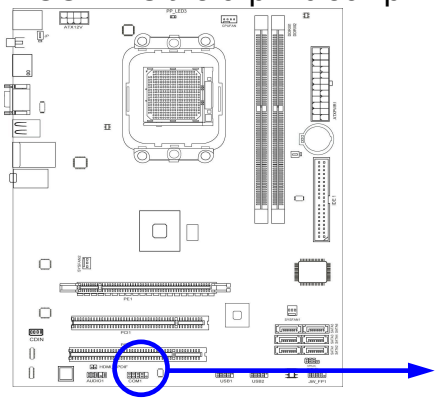


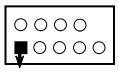


CD Audio-In Headers

(10) Serial COM Port header: COM1

COM1 is the 9-pin block pin-header.



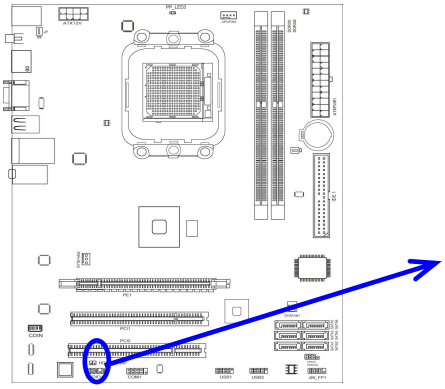


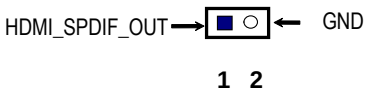
Pin

Serial COM Port Block

(11) HDMI-SPDIF Out header: SPDIF Out

The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby digital decoder. Use this feature only when your stereo system has digital input function. Some of the VGA Card need connect SPDIF-IN Connector，so its HDMI Port can make sounds .





HDMI_SPDIF H

Starting Up Your Computer

1. After all connection are made, close your computer case cover.
2. Be sure all the switch are off, and check that the power supply input voltage is set to proper position, usually in-put voltage is 220V~240V or 110V~120V depending on your country's voltage used.
3. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.
4. Turn on your peripheral as following order:
   a. Your monitor.
   b. Other external peripheral (Printer, Scanner, External Modem etc…)
   c. Your system power. For ATX power supplies, you need to turn on the power supply and press the ATX power switch on the front side of the case.
5. The power LED on the front panel of the system case will light. The LED on the monitor may light up or switch between orange and green after the system is on. If it complies with green standards or if it is has a power standby feature. The system will then run power-on test. While the test is running, the BIOS will alarm beeps or additional message will appear on the screen.

   If you do not see any thing within 30 seconds from the time you turn on the power. The system may have failed on power-on test. Recheck your jumper settings and connections or call your retailer for assistance.
6. During power-on, press <Delete> key to enter BIOS setup. Follow the instructions in BIOS SETUP.
7. **Power off your computer:** You must first exit or shut down your operating system before switch off the power switch. For ATX power supply, you can press ATX power switching after exiting or shutting down your operating system. If you use Windows 9X, click **"Start"** button, click **"Shut down"** and then click **"Shut down the computer?"** The power supply should turn off after windows shut down.

Introducing BIOS

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press <Esc> to quit the BIOS Setup.
- Press ↑↓←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.
- Press <F10> when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.
- Press Page Up/Page Down or +/– keys when you want to modify the BIOS parameters for the active option.

Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

Press <Del> to enter Setup or press <F1> to load default values and continue

Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <Esc>.

The Main Menu

Once you enter AMI® BIOS CMOS Setup Utility, the Main Menu (Figure 3-1) will appear on the screen. The Main Menu allows you to select from fourteen setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

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Standard BIOS Features	**Thermal Throttling Function**
Advanced BIOS Features	**Power User Overclock Settings**
Advanced Chipset Features	**BIOS Security Features**
Integrated Peripherals	**Load Optimal Defaults**
Power Management Features	**Load Standard Defaults**
Miscellaneous Control	**Save Charges and Exit**
PC Health Status	**Discard Charges and Exit**

↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help
F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults

Figure 3-1

Standard BIOS Features
Use this Menu for basic system configurations.

Advanced BIOS Features
Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features
Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals
Use this menu to specify your settings for integrated peripherals.

Power Management Features
Use this menu to specify your settings for power management.

Miscellaneous Control
Use this menu to specify your settings for Miscellaneous Control.

PC Health Status
This entry shows your PC health status.

Thermal Throttling Function
The selection is set for activating the active CPU Thermal Protection by flexible CPU loading adjustment in the range of temperature you define.

Power User Overclock Settings
Use this menu to specify your settings (frequency, Voltage) for overclocking demand

BIOS Security Features

Use this menu to set supervisor password and user password.

Load Standard Defaults

This menu uses a minimal performance setting, but the system would run in a stable way.

Load Optimal Defaults

Use this menu to load the BIOS default values these are setting for optimal performances system operations for performance use.

Save Changes and Exit

Save CMOS value changes to CMOS and exit setup.

Discard Changes and Exit

Abandon all CMOS value changes and exit setup.

Standard BIOS Features

The items in Standard CMOS Setup Menu are divided into several categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

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Standard BIOS Features

Language	**English**	**Item Help**
System Date	**Fri 07/24/2009**	
System Time	**00:50:22**	
IDE Channel 0 Master	**Not Detected**	**Select the current default language used by the BIOS.**
IDE Channel 0 Slave	**Not Detected**	
SATA Channel 1	**Not Detected**	
SATA Channel 2	**Not Detected**	
SATA Channel 3	**Not Detected**	
SATA Channel 4	**Not Detected**	
SATA Channel 5	**Not Detected**	
SATA Channel 6	**Not Detected**	
Floppy A	**1.44MB 3.5**	
System Memory Size: 768MB		
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help		
F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

Language

Use this item to select the current default language used in BIOS. The Optional settings are: Chinese (GB): English.

System Date

The date format is <day><month><date><year>.

Day Day of the week, from Sun to Sat, determined by BIOS. Read-only.
Month The month from Jan. through Dec.
Date The date from 1 to 31 can be keyed by numeric function keys.
Year The year depends on the year of the BIOS.

System Time

The time format is <hour><minute><second>.

IDE Master / Slave
SATA Channel 1, 2, 3, 4, 5, 6

While entering setup, BIOS auto detest the presence of IDE devices. This displays the status of auto detection of IDE devices.
Type: The optional settings are: Not Installed; Auto; CD/DVD and ARMD
LBA/Large Mode: The optional settings are Auto; Disabled.
Disabled: Disables LBA Mode.
Auto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.
Block (Multi-Sector Transfer): The optional settings are: Disabled and Auto.
Disabled: The Data transfer from and to the device occurs one sector at a time.
Auto: The Data transfer from and to the device occurs multiple sectors at a time if the device supports it.
PIO Mode: the optional settings are: Auto, 0, 1, 2, 3 and 4.
DMA MODE: the optional settings are Auto, SWDMAn, MWDMAn , UDMAn.
S.M.A.R.T.: This option allows you to enable the HDD S.M.A.R.T Capability (Self-Monitoring, Analysis and Reporting Technology). The optional settings are Auto; Disabled; and ENABLED.
32 Bit Data Transfer: the optional settings are: Disabled and Enabled.

Floppy A
This item is for specific floppy disk drive settings. Select according to the specification of the floppy disk you use.

System Memory
This item will show information about the memory modules(s) installed.

Advanced BIOS Features

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Advanced BIOS Features

Advanced Settings		**Help Item**
WARNING: Setting wrong values in below sections **May cause system to malfunction**		**Configure CPU**
CPU Configuration	**Press Enter**	
Quick Boot	**Enabled**	
Boot up Num-Lock	**On**	
ACPI APIC Support	**Enabled**	
MPS Revision	**Enabled**	
Quiet Boot	**Disabled**	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help **F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults**		

Quick Boot
Allows BIOS to skip certain tests while booting. This will decrease the needed to boot the system.
Boot Up NumLock Status
The default value is On.
On (default) Keypad is numeric keys.
Off Keypad is arrow keys.
ACPI APIC Support
Include ACPI APIC table pointer to RSDT pointer list.

MPS Revision

This option is only valid for multiprocessor motherboards as it specifies the version of the Multiprocessor Specification (MPS) that the motherboard will use.

Quiet Boot

The optional settings are Enabled and Disable.
Disabled: Display normal POST message.
Enabled: Displays OME logo instead of POST message.

CPU Configuration

CMOS Setup Utility-Copyright(C)1985-2005 American Megatrends. Inc.
CPU Configuration

Module version: 14.14 AGESA Version: 6.1.3.0 Physical Count: 1 Logical Count: 4 AMD Phenom™II X4 945 processor Revision: C2 Cache L1: 512KB Cache L2 : 2048KB Cache L3 : 6MB Speed : 3000MHz, NB Clk : 200MHz Able to Change Fre: YES UCode Path level: 0x100086		Help Item Enable or Disabled the building of ACPI SART Table
GART Error Reporting	Disabled	
Microcode Update	Enabled	
Secure Virtual Mchine Mode	Enabled	
AMD Cool&Quiet Control	Enabled	
C1E Support	Disabled	
ACPI SRAT Table	Enabled	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

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Advanced Chipset Features

Memory Configuration	Press Enter	Help Item
Internal Graphics Config	Press Enter	
PCI Express Configuration	Press Enter	
HDMI Audio	Enabled	Options Disabled Enabled
NB Power Management Features	Auto	
Primary Video Controller	PCI-GFX0-GPP-IGFX	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

NB Power Management Features

Dynamic clock gating for IOC/NT/MCU/CFG.

HDMI Audio

Use this item to select HDMI audio, the optional settings are: Disabled and Enabled. Default is Enabled.

Primary Video Controller

This item is for user to choose primary video controller.

Memory Configuration

CMOS Setup Utility-Copyright(C)1985-2005 American Megatrends. Inc.
Memory Configuration

DRAM Timing Mode	Auto	Help Item
Memory CLK:	800MHz, N/A	
CAS Latency (Tcl):	6CLK N/A	Options
RAS/CAS Delay(Trcd):	6CLK, N/A	Auto
Row Precharge Time(Trp):	6 CLK, N/A	DCT0
Min Active RAS(Trrd):	15CLK, N/A	
RAS/RAS Delay(Trrd):	4CLk, N/A	
Row Cycle(Trc)	21 CLK, N/A	
Write Recover Time(Twr)	6CLK, N/A	
Bank Interleaving	Auto	
Channel Interleaving	XOR of Address b	
Enabled clock to All DIMMs	Disabled	
Mem CLK Tristate C3/ATL VID	Disabled	
Memory Hole Remapping	Enabled	
DCT Unganged Mode	Always	
Power Down Enabled	Enabled	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

Bank Interleaving

Use this item to enable bank memory interleaving.

Enable Clock to ALL DIMMs

Enable unused clocks to DIMMS when memory slots are not populated.

Mem CLK Tristate during C3 and Alt VID.

Enable and disable Mem CLK Tri-stating during C3 and Alt VID

Memory Hole Remapping

Enable Memory Remapping around Memory Hole.

DCT Unganged Mode

This allows selection of unganged DRAM MODE (64- bit width).

Auto=Ganged Mode; Always= Unganged Mode.

Power Down Enable

Enable or Disable power down mode.

Internal Graphics Configurations

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Internal Graphics Configurations

Internal Graphics Mode	**UMA+SIDEPORT**	
UMA Frame Buffer Size	**Auto**	**Help Item**
SIDEPORT Clock Speed	**667MHz**	**Options**
		Disabled
GFX Engine Clock Override	**Disabled**	**UMA**
UMA-SP Interleave Mode	**Auto**	**SIDEPORT**
SP Power Management	**Auto**	**UMA+SIDEPORT**
SP NB Termination	**Auto**	
SP Memory Termination	**Auto**	
SP CMD Hold	**Auto**	
SP DATA Hold	**Auto**	
Surround View	**Auto**	
FB Location	**Above 4G**	
Debug Option	**Press Enter**	

↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help
F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults

UMA Frame Buffer Size

The optional settings are: Auto; 32MB; 64 MB; 128 MB; 256 MB and 512 MB.

Surround View

The item is for Hyprid CrossFire function. The optional settings are: Enabled; Disabled.

Debug Option

There are some sub-item to set, such as Bank Mapping Control, UMA Address Swizzle Control, SP Size Override, Side Port Calibration and VBIOS Type.

PCI Express Configuration

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PCIExpress Configuration

PCI Express Configuration		**Help Item**
GPP Slots Power Limit, W	**25**	**Options**
Port #02 Features	**Press Enter**	**Auto**
Port #04 Features	**Press Enter**	**Enabled**
NB-SB Port Features	**Press Enter**	**Disabled**

↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help
F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults

Port #02 Features ~ Port #04 Features

Press Enter and set values in the sub-items as Ge2 High Speed Mode, Link ASPM,.

NB-SB Port Features

Press Enter and set values in the sub-items as NB-SB Link ASPM,;NP NB-SB VC1 Traffic Support and Link Width.

Integrated Peripherals

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Integrated Peripherals

Onboard SATA Device	Press Enter	Help Item
Onboard Device Control	Press Enter	
Super IO Configuration	Press Enter	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

Onboard SATA Device

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Onboard SATA Device

Onchip SATA Channel	Enter	Help Item
Onchip SATA Type	Native IDE	
SATA IDE Combined Mode	Enabled	Select the time out value for detecting ATA/ATAPI device(s)
Hard Disk Write Protest	Disabled	
IDE Detect Time Out(Sec)	35	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

OnChip SATA Channel

Press Enter to enable or disable CnChip SATA Channel.

0n Chip SATA Type

Press Enter to select the SATA type. The optional settings are: Native IDE; RAID; AHCI; Legacy IDE; IDE→AHCI.

OnChip Device Control

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OnChip Device Control

Onboard PCIE LAN Device	Enabled	Help Item
Onboard Lan BootRom	Disabled	Options Disabled Enabled
HD Audio Azalia Device	Enable	
USB configuration	Press Enter	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

Onboard PCI E Lan

Use this item to enable or disable Onboard PCI E Lan

HD Audio Azalia Device

This item allows you to decide to enable/disable the chipset family to support HD Audio.The optional settings ar: Auto; Enabled and Disabled.

USB Configuration

Press Enter to set values for sub-items as: Legacy USB Support, USB 2.0 Controller Mode BIOS EHCI Hand-OFF.

Super IO Configuration

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Super IO Configuration

Configure F71863 Super IO Chipset		Help Item
Power On By Keyboard	Disabled	Allows BIOS to Enable or Disable Floppy Controller
Power On By Mouse	Disabled	
Serial Port 1 Address	3F8/IRQ4	
Serial Port 2 Address	2F8/IRQ3	
Serial Port 2 Mode	IrDA (1.6 US)	
IR Duplex Mode	Half Deplex	
IRTX pin Select	Normal	
IRRX Select	Normal	
IR TX to RX Delay Select	No Delay	
IR RX to TX Delay Select	No Delay	
PWRON After PWR-Fail	Always PFF	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

Serial Port1 /2 Address

Use this item to select serial port address for serial port one.

Serial Port2 Mode

The optional settings are: Normal; IrDA (1.6 ns); IrDA(3/16 bit).

IrDA Duplex Mode

This item allows BIOS to select full or half duplex for serial port 2(IR Mode).The optional settings are: Full Duplex; Half Duplex.

IrTX Pin Select

The optional settings are: Normal and Inverse.

This item allows BIOS to select transmit pin in a normal condition or inverse the IRTX(IR Mode).

IrRX Pin Select

The optional settings are: Normal and Inverse.

This item allows BIOS to select receiver pin in normal condition or inverse the IRRX(IR mode).

IRTX to RX Delay Select

The optional settings are: No Delay and Reception Delay.

This item allows BIOS to select IR from RX to TX 4 characters time delay for serial port2(IR mode)

IRRX to TX Delay Select

The optional settings are: No Delay and Transmission Delay.

Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy saving while operating in a manner consistent with your own style of computer use.

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Power Management Setup

Power Management Feature		Help Item
Power management/APM	Enabled	
Suspend Time Out	Disabled	
Power Button Mode	On/Off	Disable/Enable
Video Power Down Mode	Suspend	RTC to generate a wake event
Hard Disk Power Down MODE	Suspend	
Hard Disk Time Out (Minute)	Disabled	
Restore on AC Power Loss	Disabled	
Power On by PCI Card	Disabled	
Wake-up by PCIE	Disabled	
RTC Resume	Disabled	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

Power Management/APM

Use this item to enable or disable AMI based power management and APM support.

Suspend Time Out

If it is set Enabled and no activity during this time period, the BIOS will place the system into suspend low power state. The optional settings are: Enable; 1~64 minutes.

Power Button Mode

The optional settings are: On/Off; Suspend.

Video Power Down Mode

The optional settings are: Disabled; Standby and Suspend.

Restore on AC Power Loss

The optional settings are: Disabled; Power on; Power Off and last state.

Miscellaneous Control

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Miscellaneous Control

Advanced PCI/PnP Setting		Help Item
WARNING: Setting wrong values in below sections may cause system to malfunction		Options Clear NVRAM during System Boot
Clear NVRAM	No	
Plug &Play O/S	No	
PCI LATENCY Timer	64	
Allocate IRQ to PCI VGA	Yes	
Palette Snooping	Disabled	
PCI IDE Bus Master	Disabled	
Off Board PCI/ISA IDE Card	Auto	
IRQ Resources	Press Enter	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

Plug &Play O/S

The optional settings are: No; Yes

No: Let the BIOS configure all the devices in the system.

Yes: Let the operating system configure Plug and Play devices, not required for boot if your system has a Plug and Play system.

Allocate IRQ for PCI VGA

The optional settings are: No; Yes.

Yes: Assigns IRQ to PCI VGA card if card requests IRQ.
No: Does not assign IRQ to PCI VGA card even card requests an IRQ.

Palette Snooping

The optional settings are: Enabled; Disabled.
Enable: inform the PCI device that an ISA graphics devices is installed in the system so the card will function correctly.

PCI IDE Bus Master

The optional settings are: Enabled; Disabled.
Enable: BIOS uses PCI busmastering for reading/writing IDE devices.

Offboard PCI/ISA IDE Card

Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card.

PC Health Status

This section shows the Status of you CPU, Fan, and Warning for overall system status. This is only available if there is Hardware Monitor onboard.

CMOS Setup Utility-Copyright(C)1985-2005 American Megatrends. Inc.
PC Health Status

PC Health Status		**Help Item**
Smart FAN Configuration	**Press Enter**	
H/W Health Function	**Enabled**	
CPU Temperature:	**59°C/138°F**	
System Temperature:	**40°C/104°F**	
CPUFAN Speed:	**2923RPM**	
SYSFAN1 Speed:	**N/A**	
SYSFAN2 Speed:	**N/A**	
VLDT	**1.160v**	
VDIMM	**1.599V**	
Vcore	**1.360v**	
VNB	**1.160V**	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help		
F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

H/W Health Function,

it displays information list below when set as below. The choice is either Enabled or Disabled.

CPU Temperature/ System Temperature/ CPUFAN1 Speed /SYSFAN1 Speed/SYSFAN2 Speed/VLDT/VDIMM/VCore/VNB

This will show the CPU/ /System voltage chart and FAN Speed, etc.

Smart FAN Configuration

CMOS Setup Utility-Copyright(C)1985-2005 American Megatrends. Inc.
Smart FAN Configuration

Fan1 Mode Setting	**Auto Fan by Duty**	**Help Item**
Temperature1 Limit of Hig	**050**	
Temperature1 Limit of Sec	**040**	**Fan Configuration Mode Setting**
Temperature1 Limit of Thi	**030**	
Temperature1 Limit of Low	**020**	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help		
F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

Smart FAN Configurations FAN1 Mode Setting

The optional settings are: Auto Fan by RPM; Auto Fan by Dutycycle; Manual Mode by RPM and Manual Mode by Dutycycle.

Thermal Throttling Options

CMOS Setup Utility-Copyright(C)1985-2005 American Megatrends. Inc.
Thermal Throttling Options

CPU Thermal-Throttling	**Enabled**	**Help Item** **Options** **Disabled** **Enabled**
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help **F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults**		

CPU Thermal Throttling

Use this item to enable or disable CPU thermal Throttling. The optional settings are: Enable; Disabled. When set as Enabled, the two following items will show.

Power User Overclock Setting

CMOS Setup Utility-Copyright(C)1985-2005 American Megatrends. Inc.
Power User Overclock Setting

AMD Overclocking Configuration		**Help Item**
CPU/HT Reference Clock(MHz)	**200**	
PCI E Reference Clock (MHz)	**100**	
SB Reference Clock(MHz)	**100**	
Processor Frequency Multipli	**Auto**	
CPU-NB FID	**Auto**	
Over Voltage Configuration		
AOD Compatibility	**Disabled**	
Processor Voltage	**Disabled**	
VDIMM Select	**1.60v**	
HT Link Speed	**Auto**	
HT Link Width	**Auto**	
DRAM Command Rate	**2T**	
Memory Clock Mode	**Auto**	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help **F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults**		

CPU/HT Reference Clock

Use this item to set CPU/HT Reference Clock. The optional setting range is:190~400 MHz.

PCI E Reference Clock

The enabled setting is 100.

SB Reference Clock

The enabled setting is 100.

Processor Voltage

The optional settings are: Auto; 0.800V~1.350V.

AOD Compatibility

Choose Enabled means only AMD over drive can adjust voltage
Choose Disabled means only BIOS can adjust voltage

Memory Clock Mode

The optional settings are: Auto; Limit and Manual.

BIOS Security Features

CMOS Setup Utility-Copyright(C)1985-2005 American Megatrends. Inc.
BIOS Security Features

Security Settings		Help Item
Supervisor Password:	Not Installed	Install or change the password
User Password:	Not Installed	
Change Supervisor Password	Press Enter	
Change User Password	Press Enter	
Boot Sector Virus Protection	Disabled	
↑↓ : Move Enter: Select +/-/: Value F10: Save ESC: Exit F1: General Help F5: Discard Charges F6: Standard Defaults F7: Optimized Defaults		

Load Optimal Defaults/ Load Standard Defaults

Load Optimal Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimal Defaults?
【OK】 【Cancel】

Pressing <OK> loads the default values that are factory settings for optimal performance system operations.

Load Standard Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Standard Defaults?
【OK】 【Cancel】

Pressing <OK> loads the default values that are factory settings for stable performance system operations.

Save Changes and Exit / Discard and Exit

Save Changes and Exit

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Save Configuration changes and exit setup?
【OK】 【Cancel】

Pressing <OK> save the values you made previously and exit BIOS setup.

Discard Changes and Exit

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Discard Changes and Exit Setup?
【OK】 【Cancel】

Pressing <OK> to leave BIOS setting without saving previously set values.

Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version form our official website.

DRIVER & FREE PROGRAM INSTALLATION

Check your package and there is A MAGIC INSTALL CD included. This CD consists of all DRIVERS you need and some free application programs and utility programs. In addition, this CD also include an auto detect software which can tell you which hardware is installed, and which DRIVERS needed so that your system can function properly. We call this auto detect software MAGIC INSTALL.

MAGIC INSTALL supports Windows 2K/XP/Vista/Windows 7

Insert CD into your CD-ROM drive and the MAGIC INSTALL Menu should appear as below. If the menu does not appear, double-click MY COMPUTER / double-click CD-ROM drive or

click START / click RUN / type X:\SETUP.EXE (assuming X is your CD-ROM drive).

From MAGIC INSTALL MENU you may take 11 selections:

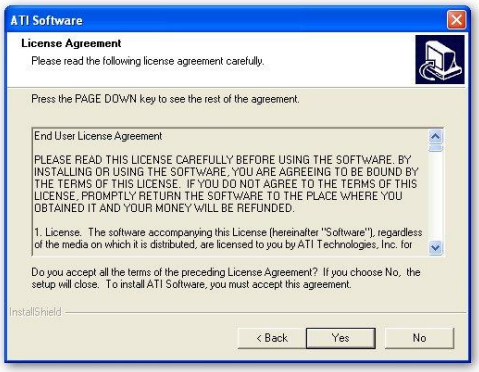
1. ATI install ATI integrated driver pack
2. SOUND install HD codec audio driver
3. LAN install gigabit Ethernet NIC driver
4. RAIDDISK install ATI SATA driver and utility
5. Norton install NORTON 2009 anti-virus program
6. PC-Health install My Guard hardware monitor utility
7. FUSION download FUSION drivers and tools
8. HDMI install ATI HDMI audio driver
9. OVER CLOCK install overclock driver utility
10. BROWSE CD to browse the contents of the CD
11. EXIT to exit from MAGIC INSTALL menu

Install ATI Driver Pack

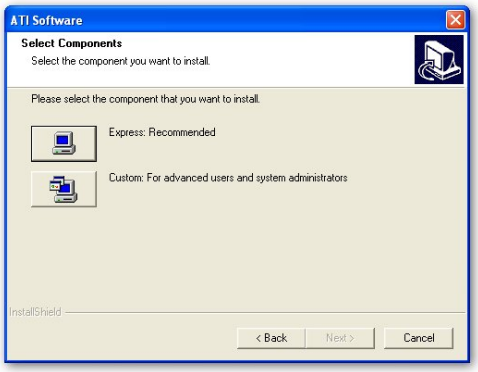
1. Click ATI when the MAGIC INSTALL MENU appears.

ATI Software
Welcome to the InstallShield Wizard for ATI Software
The InstallShield® Wizard will install ATI Software on your computer. To continue, click Next.
< Back
Next >
Cancel

2. Click NEXT when ATI software driver pack appears.


ATI Software
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
End User License Agreement
PLEASE READ THIS LICENSE CAREFULLY BEFORE USING THE SOFTWARE. BY INSTALLING OR USING THE SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS LICENSE. IF YOU DO NOT AGREE TO THE TERMS OF THIS LICENSE, PROMPTLY RETURN THE SOFTWARE TO THE PLACE WHERE YOU OBTAINED IT AND YOUR MONEY WILL BE REFUNDED.
1. License. The software accompanying this License (hereinafter "Software"), regardless of the media on which it is distributed, are licensed to you by ATI Technologies, Inc. for
Do you accept all the terms of the preceding License Agreement? If you choose No, the setup will close. To install ATI Software, you must accept this agreement.
InstallShield
< Back
Yes
No

3. Click “Yes” to accept the license agreement and start installation..



4. Click Express, recommended.

Software Installation
The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

5. Click Continue Anyway.

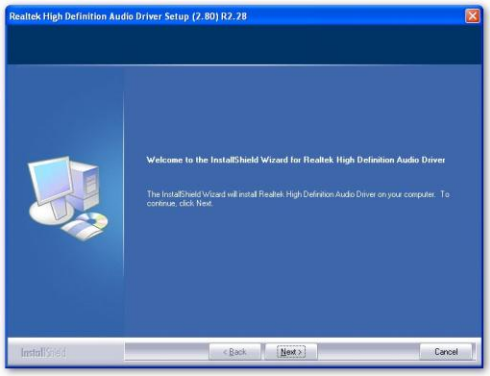
Setup Complete
Setup has finished installing the selected components to your system.
Before you can use the program, you must restart Windows or your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Finish

6. Finish the installing.

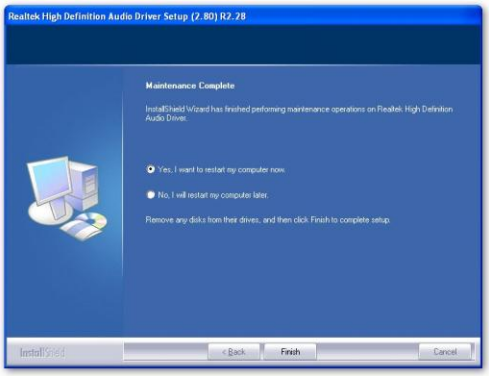
NOTE: Please upgrade your Windows XP to Service Pack 1 / Windows 2000 to Service Pack 4 or later before you install the HD Audio CODEC driver

Sound Install HD Codec Audio Driver

1. Click SOUND when MAGIC INSTALL MENU appears


Realtek High Definition Audio Driver Setup (7.80) R2.28
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
Back
Next >
Cancel

2. Click NEXT When Realtek High Definition Audio driver windows appear

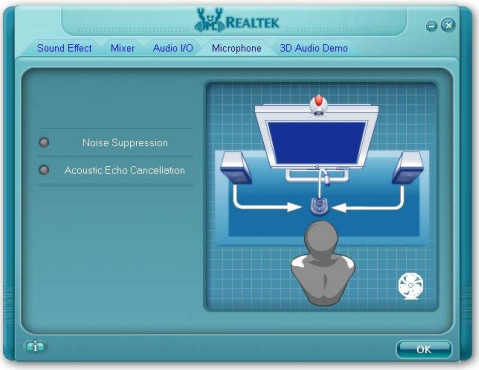

Realtek High Definition Audio Driver Setup (7.80) R2.28
Maintenance Complete
InstallShield Wizard has finished performing maintenance operations on Realtek High Definition Audio Driver.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
Back
Finish
Cancel

3. Click FINISH and restart your computer

4. Manual Sound Effect Setting

5. Devices and mixer setting

6. Audio input and output setting.



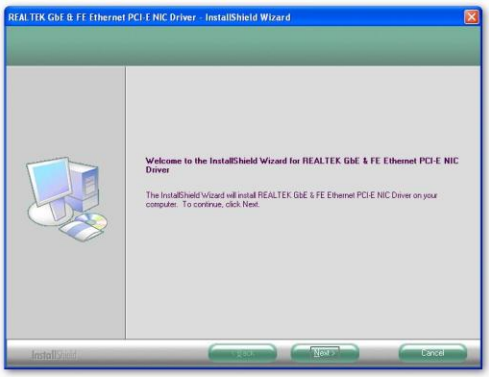
7. Microphone effect setting.

8. 3D demo setting.

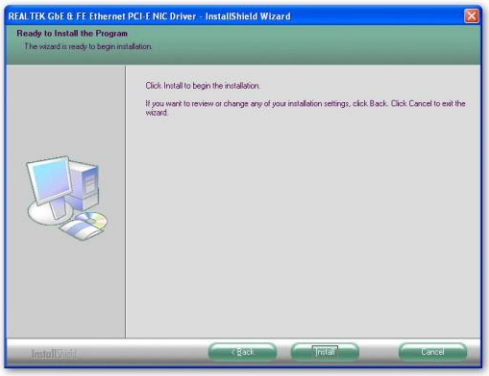
NOTE: Please upgrade your Windows XP to Service Pack 1 / Windows 2000 to Service Pack 4 or later before you the HD Audio CODEC driver.

LAN Install Gigabit Ethernet NIC Driver

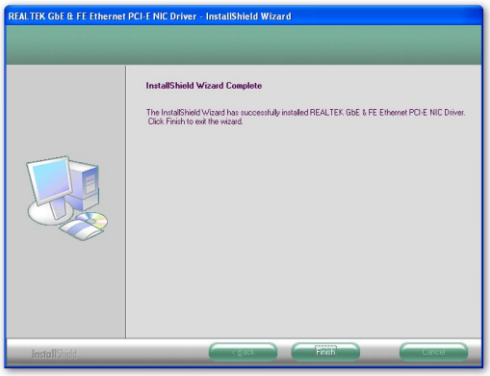
1 Click LAN when MAGIC INSTALL MENU appears


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
Welcome to the InstallShield Wizard for REALTEK GbE & FE Ethernet PCI-E NIC Driver
Next
Cancel

2. Click Next .

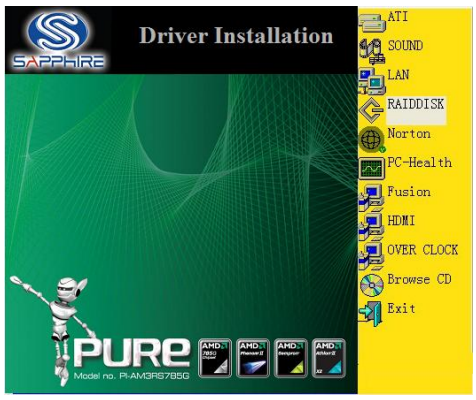


3 Click Install

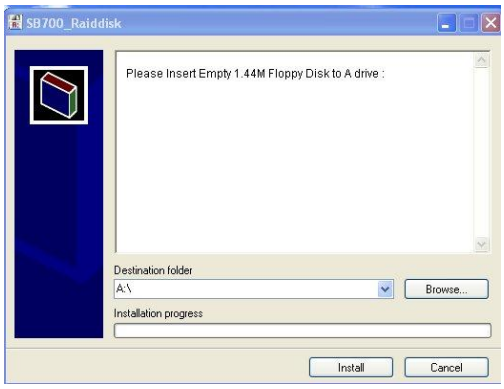


2. Finish.

RAIDDISK Install ATI SATA Driver and Utility

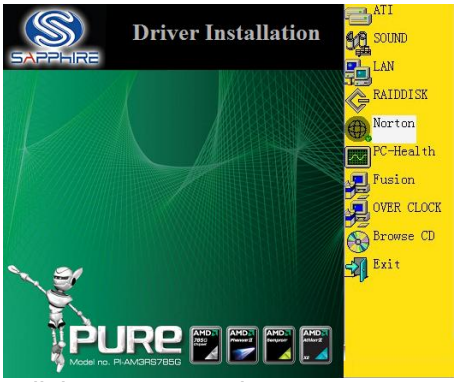


1 Click RAIDDisk when MAGIC INSTALL MENU appears



2. Copy the files to floppy disk and restart the computer with floppy disk as the first booting disk and then follow the steps shown on the screen to finish RAID function settings.

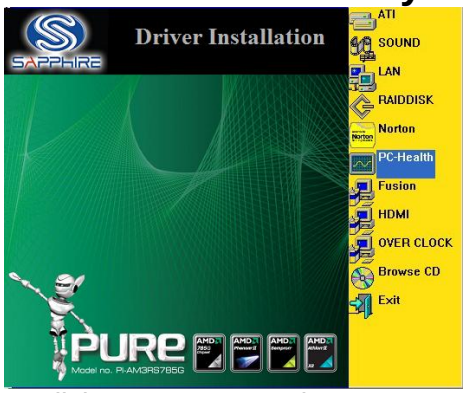
Norton Install Norton 2009 Anti-virus program



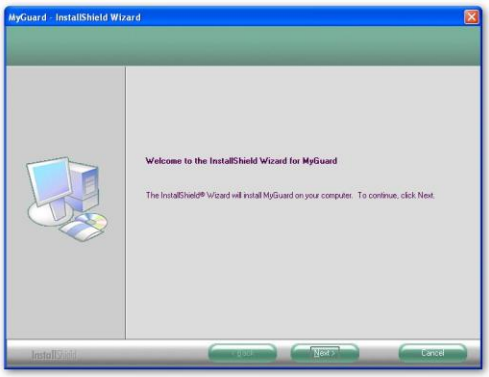
1 Click NORTON when MAGIC INSTALL MENU appears

2. Please select Agree&install.

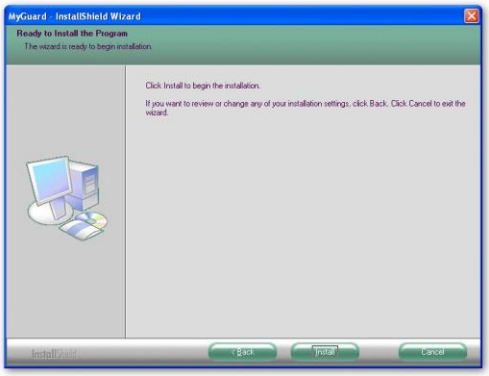
PC-Health Install MyGuard Hardware Monitor Utility



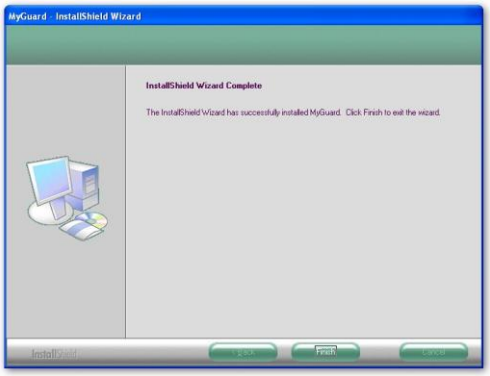
1. Click PC-HEALTH when MAGIC INSTALL MENU appears



2. Click Next on Install shield wizard Window appears



3. Click Install to begin the installation.

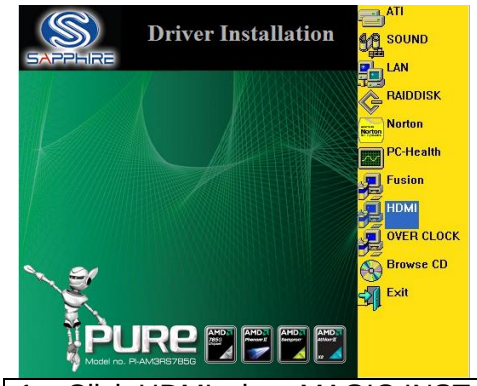


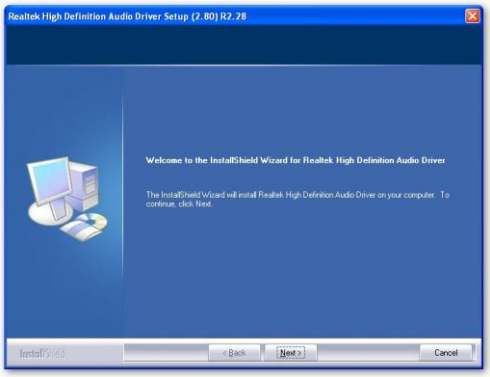
4. Click Finish to complete the installation.

Fusion Download Fusion Drivers and Tools

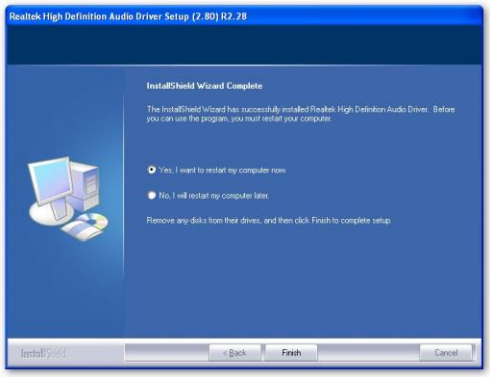
Click Fusion when Magic Install menu appears to visit AMD official website http://game.amd.com/us-en/drivers_fusion.aspx?p=1 to download fusion drivers and tools. Please make sure that you net is connected well and you operating system is Windows Vista before running downloaded programs.

HDMI Install ATI HDMI Audio Driver




Realtek High Definition Audio Driver Setup (2.80) R2.28
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
< Back
Next >
Cancel

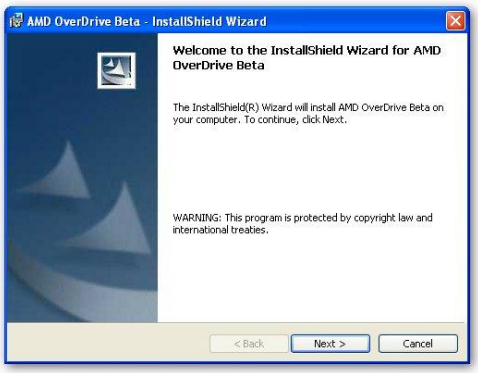
1. Click HDMI when MAGIC INSTALL MENU appears	2. Click Next on Install shield wizard Window appears


Realtek High Definition Audio Driver Setup (2.80) R2.28
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

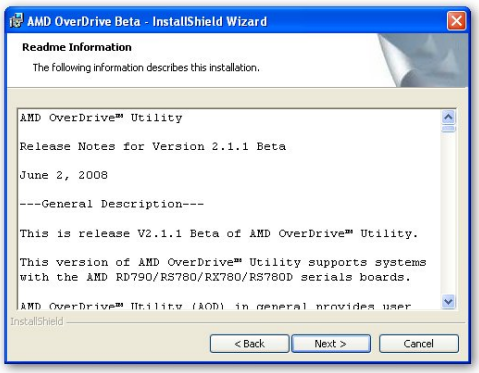
3. Choose finish.

OVERCLOCK Install OVERCLOCK Drive Utility

1. Click OVER CLOCK when MAGIC INSTALL MENU appears


AMD OverDrive Beta - InstallShield Wizard
Welcome to the InstallShield Wizard for AMD OverDrive Beta
The InstallShield(R) Wizard will install AMD OverDrive Beta on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

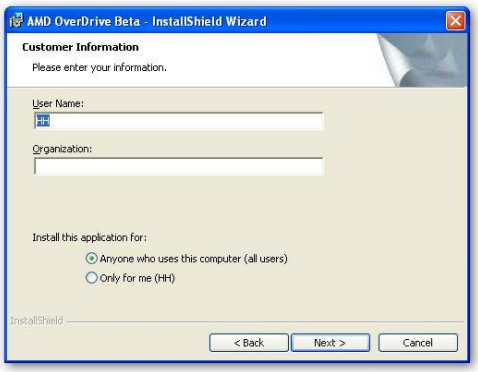
2. Click Next


AMD OverDrive Beta - InstallShield Wizard
Readme Information
The following information describes this installation.
AMD OverDrive™ Utility
Release Notes for Version 2.1.1 Beta
June 2, 2008
---General Description---
This is release V2.1.1 Beta of AMD OverDrive™ Utility.
This version of AMD OverDrive™ Utility supports systems with the AMD RD790/RS780/RX780/RS780D serials boards.
InstallShield
< Back
Next >
Cancel

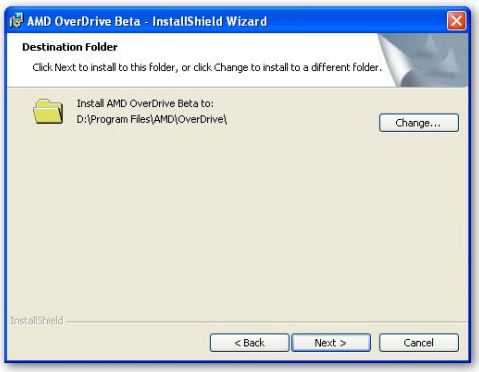
3. Read the information, then click next.

AMD OverDrive Beta - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
End User License Agreement
Overclocking Utility
PLEASE READ THIS LICENSE AGREEMENT (the "License") CAREFULLY BEFORE USING THE SOFTWARE. IF YOU ACCEPT THESE TERMS BY CLICKING ACCEPT, OR IF YOU USE THE SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS LICENSE.
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
< Back
Next >
Cancel

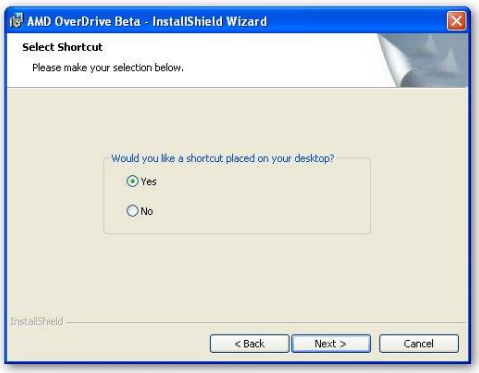
4. Choose "I accept the terms in the license agreement".



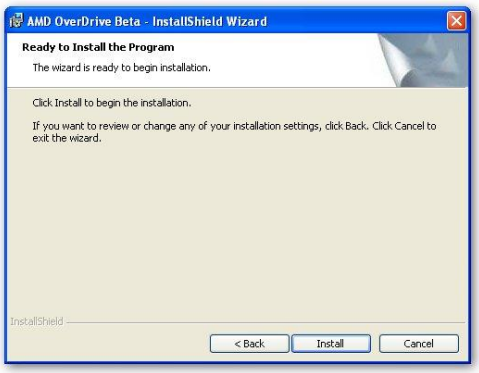
5. Choose "Anyone who use this computer" Click Next.


AMD OverDrive Beta - InstallShield Wizard
Destination Folder
Click Next to install to this folder, or click Change to install to a different folder.
Install AMD OverDrive Beta to:
D:\Program Files\AMD\OverDrive\
Change...
InstallShield
< Back
Next >
Cancel

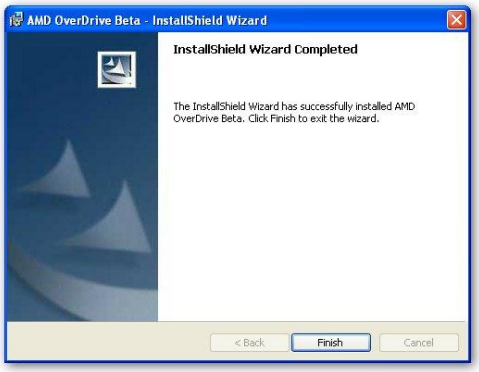
6. The information describe the installation, Click Next.



7. Choose Yes and Next.


AMD OverDrive Beta - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

8. Ready to install the program, click Install.


AMD OverDrive Beta - InstallShield Wizard
InstallShield Wizard Completed
The InstallShield Wizard has successfully installed AMD OverDrive Beta. Click Finish to exit the wizard.
< Back
Finish
Cancel

9. Finish the installation.

How to Update BIOS

STEP 1. Prepare a boot disc. (You may make one by click START click RUN type SYS A: click OK)

STEP 2. Download upgrade tools and the latest BIOS files of the motherboard from official website and then make a copy of it to your bootable floppy disk after decompressing these files

STEP 3. Insert the disk into A: ,start your computer and then type in "A:\xxxxxx.BAT"(xxxxxxx being the file name of the latest BIOS)

STEP 4. Type Enter to update and flash the BIOS. The system will restart automatically when BIOS is upgraded.

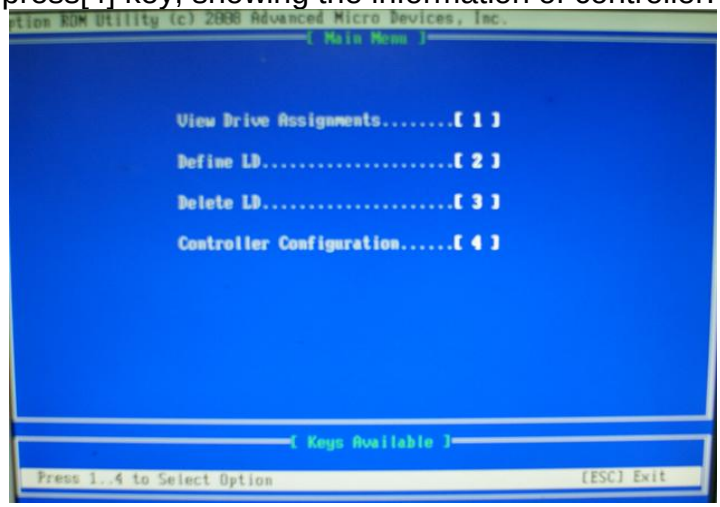
AMD Platform RAID Function Installation

Please set these choice in the BIOS as RAID：BIOS setup \Integrated Peripherals \Onchip SATA Device \ Onchip SATA Type. When the below figures appeared, please press [Ctrl-F] into figure 2

AID Option ROM Version 3.0.1540.33
c) 2008 Advanced Micro Devices, Inc. All rights reserved.
ort Device Name
WDC WD2500AAJS-22VTA0 <Single Disk 01>
WDC WD2500AAJS-00VTA0 <Single Disk 02>
ress <Ctrl-F> to enter RAID Option ROM Utility...

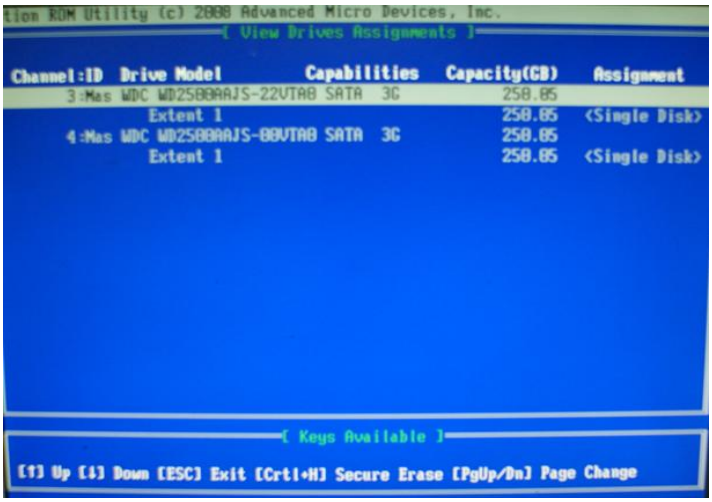
[figure1]

Function: press[1] key, showing the RAID; press [2] key，building RAID; press [3] key, delete the RAID; press[4] key, showing the information of controller.


tion ROM Utility (c) 2008 Advanced Micro Devices, Inc.
[Main Menu]
View Drive Assignments.....[1]
Define LD.....[2]
Delete LD.....[3]
Controller Configuration.....[4]
[Keys Available]
Press 1..4 to Select Option
[ESC] Exit

[figure2]

press[1] key，showing the RAID，as the below figure

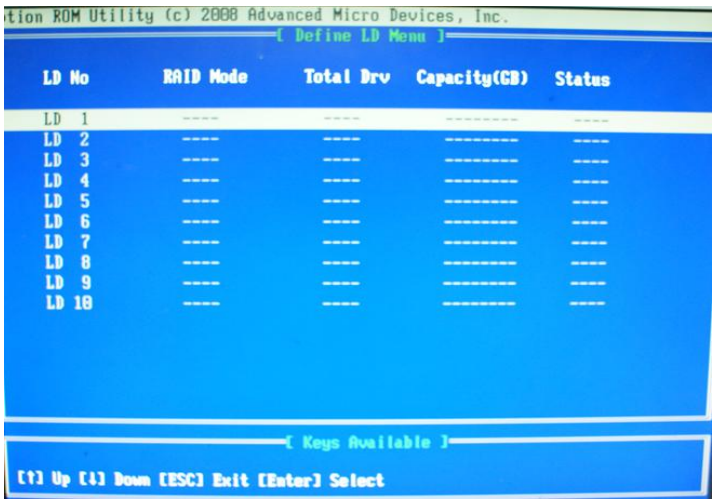

tion ROM Utility (c) 2008 Advanced Micro Devices, Inc.
[View Drives Assignments]
Channel:ID Drive Model Capabilities Capacity(GB) Assignment
3:Mas WDC WD2500AAJS-22VTA0 SATA 3G 250.05
Extent 1 250.05 <Single Disk>
4:Mas WDC WD2500AAJS-00VTA0 SATA 3G 250.05
Extent 1 250.05 <Single Disk>
[Keys Available]
[↑] Up [↓] Down [ESC] Exit [Crtl+H] Secure Erase [PgUp/Dn] Page Change

[figure3]

Press [2] key, the interface of RAID, as figure 4.

RAID function:

RAID 0/ RAID 1/ RAID 10

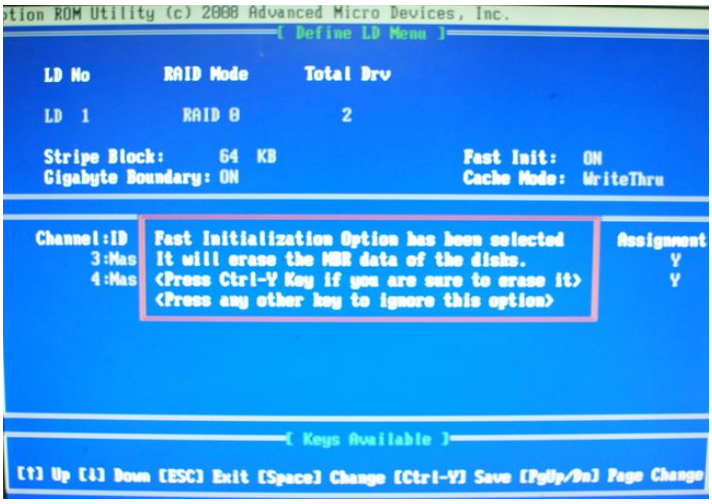

tion ROM Utility (c) 2008 Advanced Micro Devices, Inc.
[Define LD Menu]
LD No RAID Mode Total Drv Capacity(GB) Status
LD 1 ---- ---- -------- ----
LD 2 ---- ---- -------- ----
LD 3 ---- ---- -------- ----
LD 4 ---- ---- -------- ----
LD 5 ---- ---- -------- ----
LD 6 ---- ---- -------- ----
LD 7 ---- ---- -------- ----
LD 8 ---- ---- -------- ----
LD 9 ---- ---- -------- ----
LD 10 ---- ---- -------- ----
[Keys Available]
[↑] Up [↓] Down [ESC] Exit [Enter] Select

[figure4]

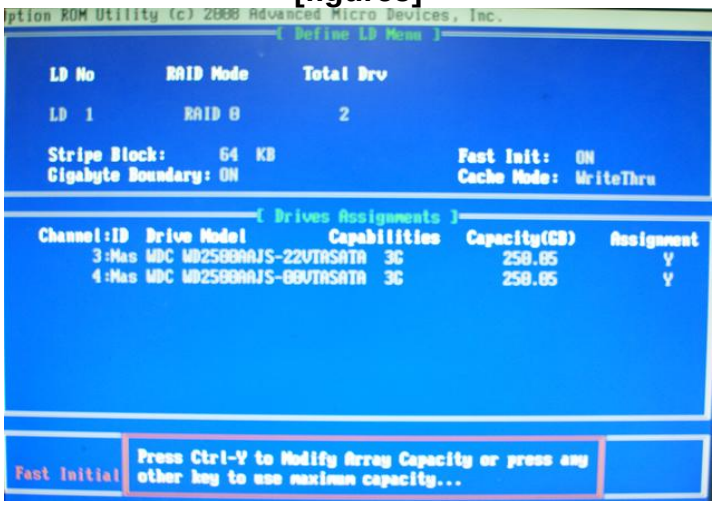
Choose LD 1 then press Enter.

Take Raid0 for example, use [↑] [↓] to shift the cursor, press space key to change the choice, press [Ctrl-Y] to keep.

Set Assignment mode as [Y], press [Ctrl-Y] to keep , then figure 5 appeared, erase the MBR. choose [Ctrl-Y],figure 6 appeared. Press any key, finished the RAID.

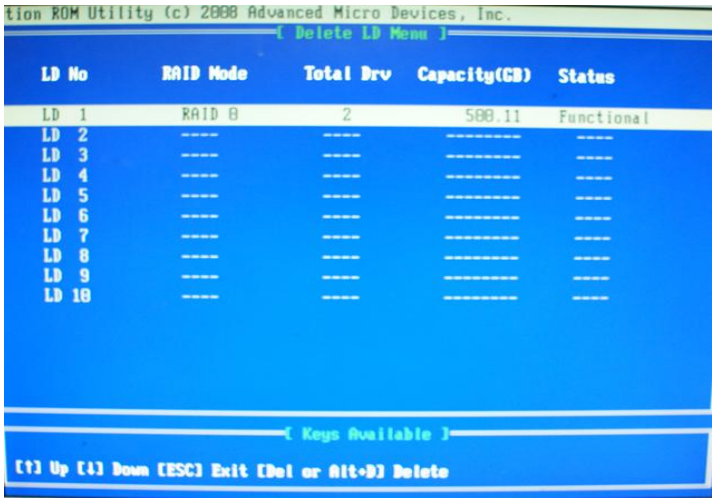

tion ROM Utility (c) 2008 Advanced Micro Devices, Inc.
[Define LD Menu]
LD No RAID Mode Total Drv
LD 1 RAID 0 2
Stripe Block: 64 KB
Gigabyte Boundary: ON
Fast Init: ON
Cache Mode: WriteThru
Channel:ID
3:Mas
4:Mas
Fast Initialization Option has been selected
It will erase the MBR data of the disks.
<Press Ctrl-Y Key if you are sure to erase it>
<Press any other key to ignore this option>
Assignment
Y
Y
[Keys Available]
[↑] Up [↓] Down [ESC] Exit [Space] Change [Ctrl-Y] Save [PgUp/Dn] Page Change

[figure5]


[Define LD Menu]
LD No RAID Mode Total Drv
LD 1 RAID 0 2
Stripe Block: 64 KB
Gigabyte Boundary: ON
Fast Init: ON
Cache Mode: WriteThru
[Drives Assignments]
Channel:ID Drive Model Capabilities Capacity(GB) Assignment
3:Mas WDC WD2500AAJS-22VTASATA 3G 250.05 Y
4:Mas WDC WD2500AAJS-60VTASATA 3G 250.05 Y
Fast Initial
Press Ctrl-Y to Modify Array Capacity or press any other key to use maximum capacity...

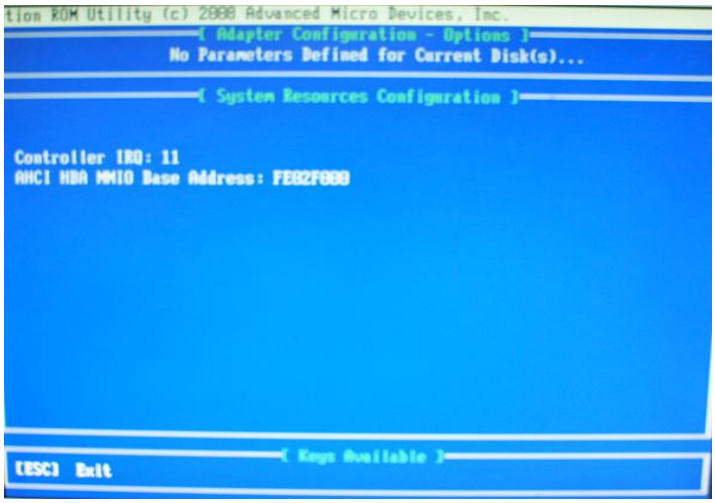
[figure6]

Press [3], delete the RAID mode, as figure 7.press [Delete] will delete the array. As figure 7 .


tion ROM Utility (c) 2008 Advanced Micro Devices, Inc.
[Delete LD Menu]
LD No RAID Mode Total Drv Capacity(GB) Status
LD 1 RAID 0 2 500.11 Functional
LD 2 ---- ---- -------- ----
LD 3 ---- ---- -------- ----
LD 4 ---- ---- -------- ----
LD 5 ---- ---- -------- ----
LD 6 ---- ---- -------- ----
LD 7 ---- ---- -------- ----
LD 8 ---- ---- -------- ----
LD 9 ---- ---- -------- ----
LD 10 ---- ---- -------- ----
[Keys Available]
[↑] Up [↓] Down [ESC] Exit [Del or Alt+D] Delete

[figure7]

Press [4], showing the information of controller, as figure 8.


tion ROM Utility (c) 2008 Advanced Micro Devices, Inc.
[Adapter Configuration - Options]
No Parameters Defined for Current Disk(s)...
[System Resources Configuration]
Controller IRQ: 11
AHCI HBA MMIO Base Address: FE02F000
[Keys Available]
[ESC] Exit

[figure8]

Making RAID driver diskette before Install WindowsXP/2000/Vista/Windows7

Before you install the operating system, you will need to make a RAID driver diskette before you start to install the Operating System.

How to make a RAID driver diskette?

1: Insert the diskette which is being formatted in floppy drive on a system which can start OS.
2: After booting OS insert the bundle CD in your CD-ROM
3: Copy all the files from \NF-orce4\RAIDDisk to floppy diskette

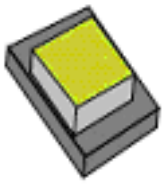
Once you have the SATA driver diskette ready, you may start to install Windows XP or Windows 2000 on your System.

Installation of Operating System

For installation of Microsoft Windows series operating system, please insert operating system CD into the CD-ROM drive. Then remove the floppy diskette, and boot the system. At the very beginning, you will see the message at the bottom of screen, “Press F6 if you need to install a third party SCSI or RAID driver….”

At this moment, please press <F6> key and follow the instructions of operating system for the proper installation.

G.P.I Function LED Display:



PP_LED3

Lights off. It means the motherboard in the G.P.I mode. CPU works with the low power consumption.

PP_LED3

Lights on. It means that the CPU works with high power consumption.

Appendix

Debug Port Post Code

Normal POST Codes

NOTE: **EISA POST codes are typically output to port address 300h.**

ISA POST codes are output to port address 80h.

Code(hex)	Name	Description
C0	Turn Off Chipset And CPU test	OEM Specific-Cache control cache Processor Status (1FLAGS) Verification. Tests the following processor status flags: Carry, zero, sign, overflow, The BIOS sets each flag, verifies They are set, then turns each flag off and verifies it is off. Read/Write/Verify all CPU registers except SS, SP, and BP with data pattern FF and 00. RAM must be periodically refreshed to keep the memory from decaying. This function ensures that the memory refresh function is working properly.
C1	Memory Presence	First block memory detect OEM Specific-Test to size on-board memory. Early chip set initialization Memory presence test OEM chip set routines Clear low 64K of memory Test first 64K memory.
C2	Early Memory Initialization	OEM Specific- Board Initialization
C3	Extend Memory DRAM select	OEM Specific- Turn on extended memory Initialization Cyrix CPU initialization Cache initialization
C4	Special Display Handling	OEM Specific- Display/Video Switch Handling so that Switch Handling display switch errors never occurs
C5	Early Shadow	OEM specific- Early shadow enable for fast boot
C6	Cache presence test	External cache size detection
CF	CMOS Check	CMOS checkup
B0	Spurious	If interrupt occurs in protected mode.
B1	Unclaimed NMI	If unmasked NMI occurs, display Press F1 to disable NMI, F2 reboot.
BF	Program Chip Set	To program chipset from defaults values
E1-EF	Setup Pages	E1- Page 1, E2 - Page 2, etc.
1	Force load Default to chipset	Chipset defaults program
2	Reserved	
3	Early Superio Init	Early Initialized the super IO
Code(hex)	**Name**	**Description**
4	Reserved	

5	Blank video	Reset Video controller
6	Reserved	
7	Init KBC	Keyboard controller init
8	KB test	Test the Keyboard
9	Reserved	
A	Mouse Init	Initialized the mouse
B	Onboard Audio init	Onboard audio controller initialize if exist
C	Reserved	
D	Reserved	
E	CheckSum Check	Check the intergraty of the ROM,BIOS and message
F	Reserved	
10	Auto detec EEPROM	Check Flash type and copy flash write/erase routines to 0F000h segments
11	Reserved	
12	Cmos Check	Check Cmos Circuitry and reset CMOS
13	Reserved	
14	Chipset Default load	Program the chipset registers with CMOS values
15	Reserved	
16	Clock Init	Init onboard clock generator
17	Reserved	
18	Identify the CPU	Check the CPU ID and init L1/L2 cache
19	Reserved	
1A	Reserved	
1B	Setup Interrupt Vector Table	Initialize first 120 interrupt vectors with SPURIOUS_INT_HDLR and initialize INT 00h-1Fh according to INT_TBL
1C	Reserved	
1D	Early PM Init	First step initialize if single CPU onboard
1E	Reserved	
1F	Re-initial KB	Re-init KB
20	Reserved	
21	HPM init	If support HPM, HPM get initialized here
22	Reserved	
23	Test CMOS Interface and Battery Status	Verifies CMOS is working correctly, detects bad battery. If failed, load CMOS defaults and load into chipset
24	Reserved	
25	Reserved	
26	Reserved	
27	KBC final Init	Final Initial KBC and setup BIOS data area
28	Reserved	
29	Initialize Video Interface	Read CMOS location 14h to find out type of video in use. Detect and Initialize Video Adapter.
2A	Reserved	
2B	Reserved	
2C	Reserved	
2D	Video memory test	Test video memory, write sign-on message to screen.
2E	Reserved	Setup shadow RAM - Enable shadow according to Setup.
2F	Reserved	
30	Reserved	
31	Reserved	

32	Reserved	
33	PS2 Mouse setup	Setup PS2 Mouse and reset KB
34	Reserved	
35	Test DMA Controller 0	Test DMA channel 0
36	Reserved	
37	Test DMA Controller 1	Test DMA channel 1
38	Reserved	
39	Test DMA Page Registers	Test DMA Page Registers.
3A	Reserved	
3B	Reserved	
3C	Test Timer Counter 2	Test 8254 Timer 0 Counter 2.
3D	Reserved	
3E	Test 8259-1 Mask Bits	Verify 8259 Channel 1 masked interrupts by alternately turning off and on the interrupt lines.
3F	Reserved	
40	Test 8259-2 Mask Bits	Verify 8259 Channel 2 masked interrupts by alternately turning off and on the interrupt lines.
41	Reserved	
42	Reserved	
43	Test Stuck8259's Interrupt Bits Test 8259 Interrupt Functionality	Turn off interrupts then verify no interrupt mask register is on. Force an interrupt and verify the interrupt occurred.
44	Reserved	
45	Reserved	
46	Reserved	
47	Set EISA Mode	If EISA non-volatile memory checksum is good, execute EISA initialization. If not, execute ISA tests an clear EISA mode flag.
48	Reserved	
49	Size Base and Extended Memory	Size base memory from 256K to 640K and extended memory above 1MB.
4A	Reserved	
4B	Reserved	
4C	Reserved	
4D	Reserved	
4E	Test Base and Extended Memory	Test base memory from 256K to 640K and extended memory above 1MB using various patterns. NOTE: This test is skipped in EISA mode and can be skipped with ESC key in ISA mode.
4F	Reserved	
50	USB init	Initialize USB controller
51	Reserved	
52	Memory Test	Test all memory of memory above 1MB using Virtual 8086 mode, page mode and clear the memory
53	Reserved	
54	Reserved	
55	CPU display	Detect CPU speed and display

		CPU vendor specific version string and turn on all necessary CPU features
56	Reserved	
57	PnP Init	Display PnP logo and PnP early init
58	Reserved	
59	Setup Virus Protect	Setup virus protect according to Setup
5A	Reserved	
5B	Awdflash Load	If required, will auto load Awdflash.exe in POST
5C	Reserved	
5D	Onboard I/O Init	Initializing onboard superIO
5E	Reserved	
5F	Reserved	
60	Setup enable	Display setup message and enable setup functions
61	Reserved	
62	Reserved	
63	Initialize & Install Mouse	Detect if mouse is present, initialize mouse, install interrupt vectors.
64	Reserved	
65	PS2 Mouse special	Special treatment to PS2 Mouse port
66	Reserved	
67	ACPI init	ACPI sub-system initializing
68	Reserved	
69	Setup Cache Controller	Initialize cache controller.
6A	Reserved	
6B	Setup Entering	Enter setup check and auto-configuration check up
6C	Reserved	
6D	Initialize Floppy Drive & Controller	Initialize floppy disk drive controller and any drives.
6E	Reserved	
6F	FDD install	Install FDD and setup BIOS data area parameters
70	Reserved	
71	Reserved	
72	Reserved	
73	Initialize Hard Drive & Controller	Initialize hard drive controller and any drives.
74	Reserved	
75	Install HDD	IDE device detection and install
76	Reserved	
77	Detect & Initialize Serial/Parallel Ports	Initialize any serial and parallel ports (also game port).
78	Reserved	
79	Reserved	
7A	Detect & Initialize Math Coprocessor	Initialize math coprocessor.
7B	Reserved	
7C	HDD Check for Write protection	HDD check out
7D	Reserved	
7E	Reserved	
7F	POST error check	Check POST error and display them

		and ask for user intervention
80	Reserved	
81	Reserved	
82	Security Check	Ask password security (optional).
83	Write CMOS	Write all CMOS values back to RAM and clear screen.
84	Pre-boot Enable	Enable parity checker Enable NMI, Enable cache before boot.
85	Initialize	Initialize any option ROMs present Option ROMs from C8000h to EFFFFh. NOTE: When FSCAN option is enabled, ROMs initialize from C8000h to F7FFFh.
86	Reserved	
87	Reserved	
88	Reserved	
89	Reserved	
8A	Reserved	
8B	Reserved	
8C	Reserved	
8D	Reserved	
8E	Reserved	
8F	Reserved	
90	Reserved	
91	Reserved	
92	Reserved	
93	Boot Medium detection	Read and store boot partition head and cylinders values in RAM
94	Final Init	Final init for last micro details before boot
95	Special KBC patch	Set system speed for boot Setup NumLock status according to Setup
96	Boot Attempt	Set low stack Boot via INT 19h.
FF	Boot	

Quick POST Codes

Code(hex)	Name	Description
65	Init onboard device	Early Initialized the super IO Reset Video controller Keyboard controller init Test the Keyboard Initialized the mouse Onboard audio controller initialize if exist. Check the intergraty of the ROM, BIOS and message Check Flash type and copy flash write/erase routines to 0F000h segments Check Cmos Circuitry and reset CMOS Program the chipset registers with CMOS values Init onboard clock generator
66	Early System setup	Check the CPU ID and init L1/L2 cache Initialize first 120 interrupt vectors with SPURIOUS_INT_HDLR and initialize INT 00h-1Fh according to INT_TBL First step initialize if single CPU onboard. Re-init KB

		If support HPM, HPM get initialized here
67	KBC and CMOS Init	Verifies CMOS is working correctly, detects bad battery. If failed, load CMOS defaults and load into chipset Final Initial KBC and setup BIOS data area.
68	Video Init	Read CMOS location 14h to find out type of video in use. Detect and Initialize Video Adapter. Test video memory, write sign-on message to screen. Setup shadow RAM - Enable shadow according to Setup.
69	8259 Init	Init 8259 channel 1 and mask IRQ 9
6A	Memory test	Quick Memory Test
6B	CPU Detect and IO init	Detect CPU speed and display CPU vendor specific version string and turn on all necessary CPU features Display PnP logo and PnP early init Setup virus protect according to Setup. If required, will auto load Awdflash.exe in POST Initializing onboard superIO
6C	Reserved	
6D	Reserved	
6E	Reserved	
6F	Reserved	
70	Setup Init	Display setup message and enable setup functions Detect if mouse is present, initialize mouse, install interrupt vectors. Special treatment to PS2 Mouse port ACPI sub-system initializing
71	Setup Cache Controller	Initialize cache controller.
72	Install FDD	Enter setup check and auto-configuration check up Initialize floppy disk drive controller and any drives. Install FDD and setup BIOS data area parameters
73	Install HDD	Initialize hard drive controller and any drives. IDE device detection and install Initialize any serial and parallel ports (also game port).
74	Detect & Initialize Math Coprocessor	Initialize math coprocessor.
75	HDD Check for Write protection	HDD check out
76	Reserved	
77	Display POST error	Check POST error and display them and ask for user intervention Ask password security (optional).
78	CMOS and Option ROM Init	Write all CMOS values back to RAM and clear screen. Enable parity checker

		Enable NMI, Enable cache before boot. Initialize any option ROMs present from C8000h to EFFFFh. NOTE: When FSCAN option is enabled, ROMs initialize from C8000h to F7FFFh.
79	Reserved	
7A	Reserved	
7B	Reserved	
7C	Reserved	
7D	Boot Medium detection	Read and store boot partition head and cylinders values in RAM
7E	Final Init	Final init for last micro details before boot
7F	Special KBC patch	Set system speed for boot Setup NumLock status according to Setup
80	Boot Attempt	Set low stack Boot via INT 19h.
FF	Boot	

S4 POST Codes

Code(hex)	Name	Description
5A	Early Chipset Init	Early Initialized the super IO Reset Video controller Keyboard controller init Test the Keyboard Initilized the mouse
5B	Cmos Check	Check Cmos Circuitry and reset CMOS
5C	Chipset default Prog	Program the chipset registers with CMOS values. Init onboard clock generator
5D	Identify the CPU	Check the CPU ID and init L1/L2 cache
5E	Setup Interrupt Vector Table	Initialize first 120 interrupt vectors with SPURIOUS_INT_HDLR and INT 00h-1Fh according to INT_TBL First step initialize if single CPU Onboard. Re-init KB If support HPM, HPM get initialized Here.
5F	Test CMOS Interface and Battery status	Verifies CMOS is working correctly, detects bad battery. If failed, load CMOS defaults and load into chipset
60	KBC final Init	Final Initial KBC and setup BIOS data area
61	Initialize Video Interface	Read CMOS location 14h to find out type of video in use.

		Detect and Initialize Video Adapter.
62	Video memory test	Test video memory, write sign-on message to screen. Setup shadow RAM - Enable shadow according to Setup.
63	Setup PS2 mouse and test DMA	Setup PS2 Mouse and reset KB Test DMA channel 0
64	Test 8259	Test 8259 channel 1 and mask IRQ 9
65	Init Boot Device	Detect if mouse is present, initialize mouse, install interrupt vectors. Special treatment to PS2 Mouse port ACPI sub-system initializing Initialize cache controller.
66	Install Boot Devices	Enter setup check and auto-configuration check up Initialize floppy disk drive controller and any drives. Install FDD and setup BIOS data area Parameters Initialize hard drive controller and any drives. IDE device detection and install
67	Cache Init	Cache init and USB init
68	PM init	PM initialization
69	PM final Init and issue SMI	Final init Before resume
FF	Full on	

BootBlock POST Codes

Code(hex)	Name	Description
1	Base memory test	Clear base memory area (0000:0000--9000:ffffh)
5	KB init	Initialized KBC
12	Install interrupt vectors	Install int. vector (0-77), and initialized 00-1fh to their proper place
0D	Init Video	Video initializing
41	Init FDD	Scan floppy and media capacity for onboard superIO
FF	Boot	Load boot sector

Suggestion on choosing electric fan

Both the amount of electric current to MOSFET and the heat produced from the motherboard go up as AMD's CPU power consumption increases. In this case we recommend users select a CPU fan with air outlet towards MOSFET so that CPU fan can carry away heat produced by MOSFET, for better heat dissipation effects. At the same time we suggest using well-ventilated cases to maintain temperature as 38℃ approximately inside.(38℃ is recommended by CPU manufactures)

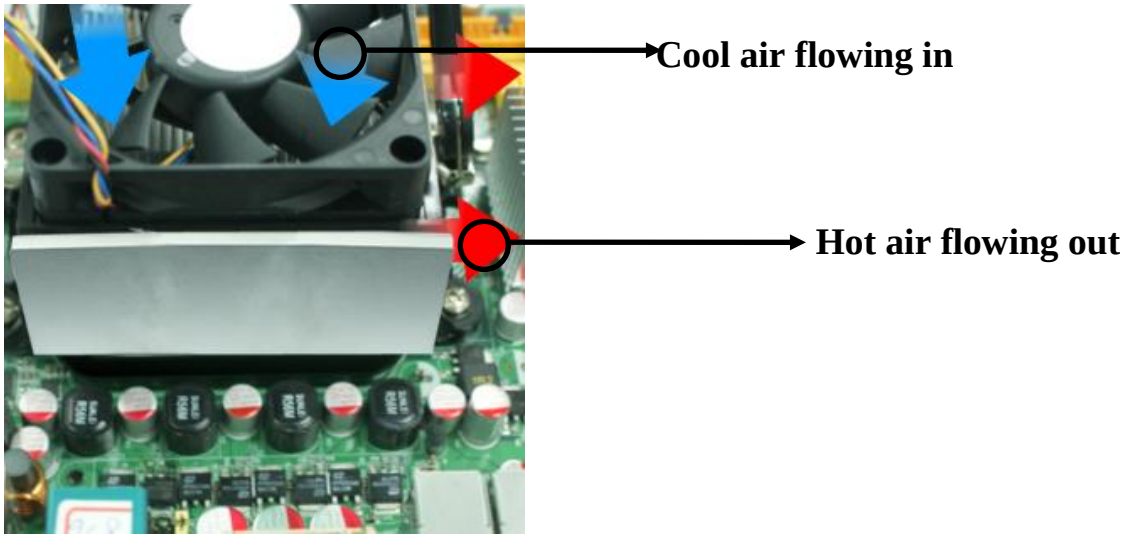


Figure 1---- CPU Fan can not blow off the heat produced by MOSFET. We suggest not to using fans of this kind

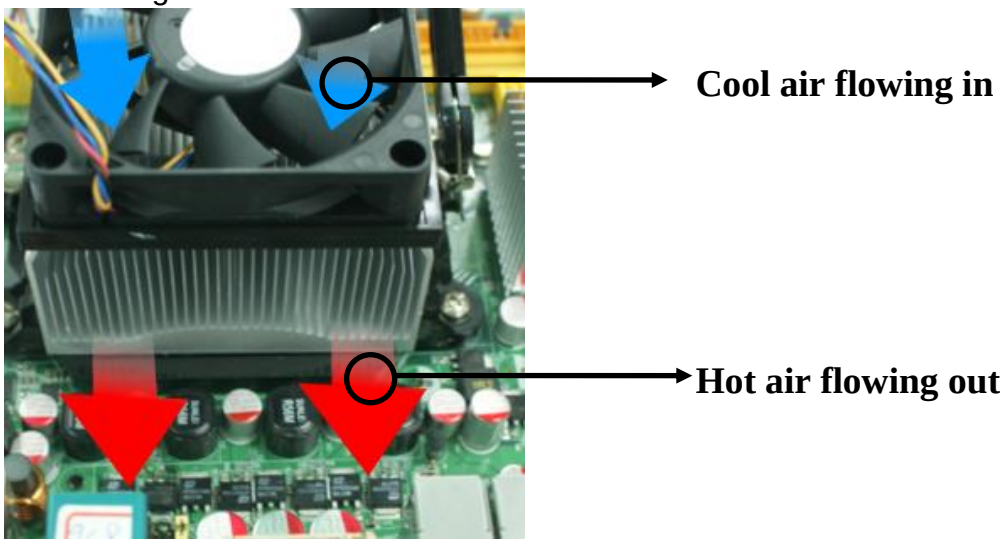


Figure 2---- CPU Fan can blow off the heat produced by MOSFET. We suggest using fans of this kind

Glossary

Chipset (or core logic) - two or more integrated circuits which control the interfaces between the system processor, RAM, I/O devises, and adapter cards.

Processor socket - the socket used to mount the system processor on the motherboard.

Slot (PCI-E, PCI, RAM) - the slots used to mount adapter cards and system RAM.

PCI - **P**eripheral **C**omponent **I**nterconnect - a high speed interface for video cards, sound cards, network interface cards, and modems; runs at 33MHz.

PCI Express2.0- Peripheral Component Interconnect Express2.0, developed in 2003, the speed of each line doubled from the previous PCI-E of 2.5 Gbps to 5 Gbps.

Serial Port - a low speed interface typically used for mouse and external modems.

Parallel Port - a low speed interface typically used for printers.

PS/2 - a low speed interface used for mouse and keyboards.

USB - **U**niversal **S**erial **B**us - a medium speed interface typically used for mouse, keyboards, scanners, and some digital cameras.

Sound (interface) - the interface between the sound card or integrated sound connectors and speakers, MIC, game controllers, and MIDI sound devices.

LAN (interface) - **L**ocal **A**rea **N**etwork - the interface to your local area network.

BIOS (**B**asic **I**nput/**O**utput **S**ystem) - the program logic used to boot up a computer and establish the relationship between the various components.

Driver - software, which defines the characteristics of a device for use by another device or other software.

Processor - the "central processing unit" (CPU); the principal integrated circuit used for doing the "computing" in "personal computer"

Front Side Bus Frequency - the working frequency of the motherboard, which is generated by the clock generator for CPU, DRAM and PCI BUS.

CPU L2 Cache - the flash memory inside the CPU, normal it depend on CPU type.